LIBERTY METRO TOWN: A SCHEMATIC DESIGN PROPOSAL FOR A NEW CONCEPT IN TOWN DESIGN IN THE KANSAS CITY REGION

by

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CHAPTER

CHAPTER I

INTRODUCTION

Statement of the Problems

It is predicted the Kansas City metropolitan region will more than double by 1990, and the most important question is: where will the people all live and work?

Very little vacant land is available within what is now considered the urbanized area. Without an extensive renewal program to re-use areas already developed, most development must occur on the periphery of the urbanized area.

The transportation facilities now connecting the outer belt, those under construction, and those being planned have opened up new land for development. This is where the region most likely will grow in the future.

Land use maps indicate a pattern of continued spreading of people, jobs, and services. This pattern of development eats away valuable and irreplaceable open space. Such inefficient development puts undue demand on expanding utilities and services which in turn increases the tax on the land.

There is no reason to believe this pattern of sprawl will change unless steps are taken to reshape it.

In 1969, the Kansas City Metropolitan Planning Commission published A Sketch Plan - 1990. It projected an additional million plus people by 1990 and discussed the five ways this large population would likely develop.[1]

1. Concentric ring development, selected as the most desirable pattern.
2. Lineal development.
3. Satellite development.
4. Radial corridor.
5. Sprawl development. More of the same haphazard development of recent years.

And there was one new suggestion: the Metro Center.

The Metro Center concept envisions a series of new towns or cities within the Kansas City metropolitan region (Figure 1). It is a bold idea that may reverse the trends that have brought so many cities to the brink of economic and ecological bankruptcy.

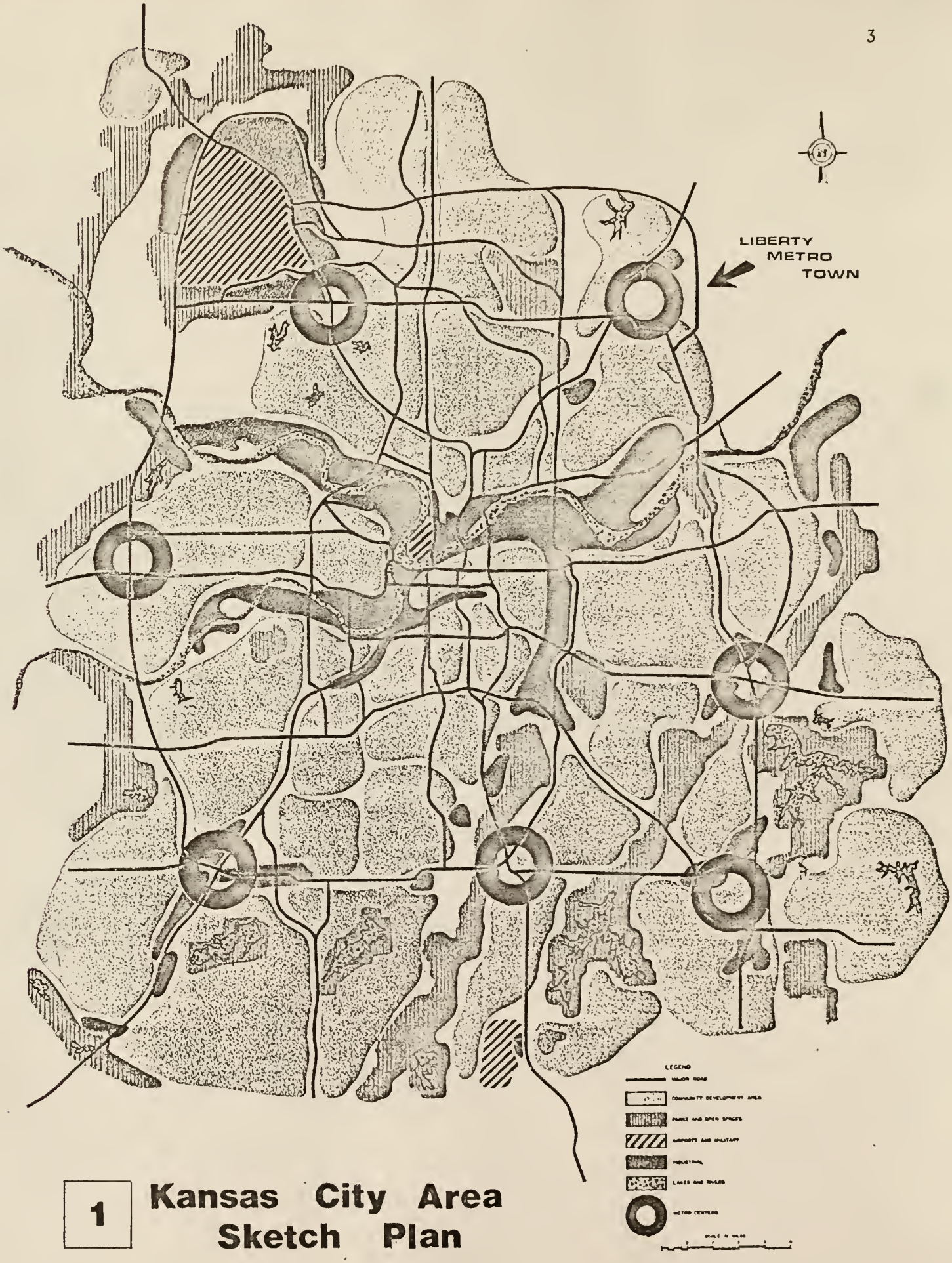
Purpose of the Study

The Metro Town concept has generated considerable interest since its introduction in the Sketch Plan. And for this reason, Mid-America Regional Council, a regional planning agency, has initiated several studies to obtain further details on how the Metro Town concept would fit into existing patterns and how it would be designed.

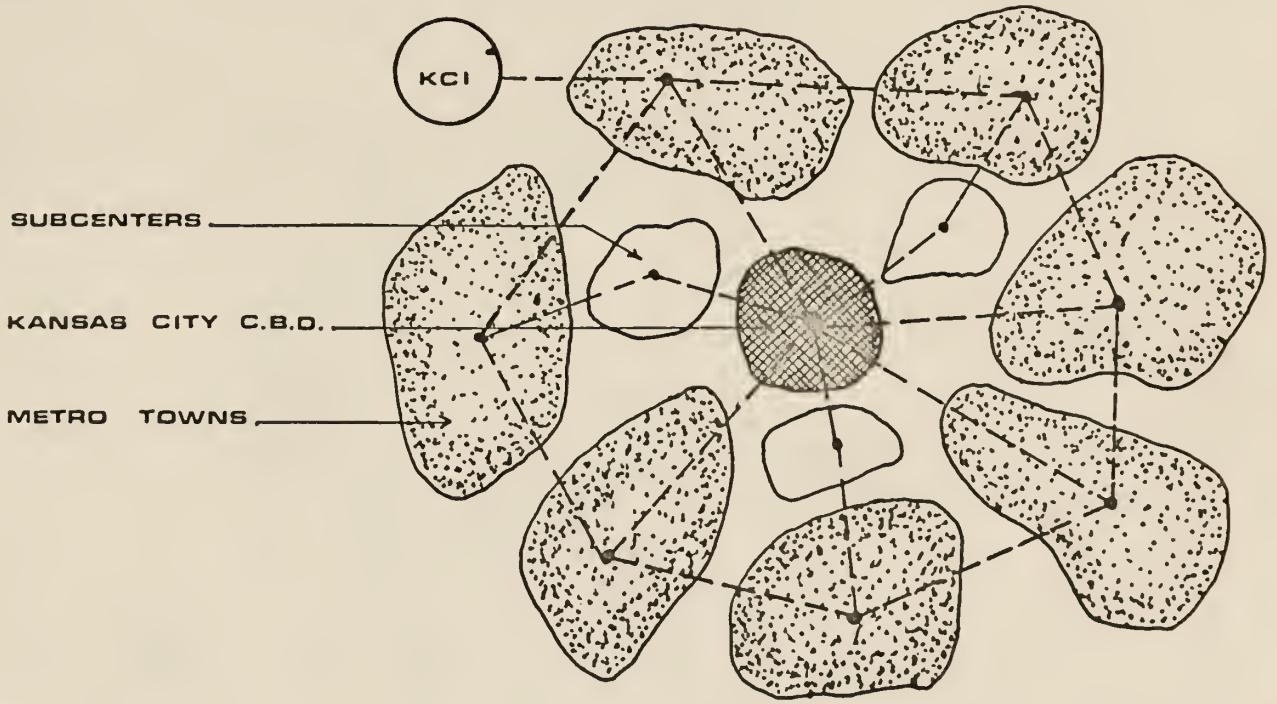
It is the purpose of this report to study the concept of Metro Town, and how it could be applied in this region.

Scope of the Project

The 1990 Kansas City Metropolitan Sketch Plan proposes seven metro towns around the city, which are linked with a system of highways and a rapid-transit to the Kansas City central business district and to one another as well as to the other sub centers of the region (Figure 2).



1 **Kansas City Area Sketch Plan**



2 **conceptual regional structure**

In this report, a physical development plan for one of the seven metro towns in the area has been proposed. And further, a schematic physical design has been applied to the town core area or central business district.

It is necessary in this point to indicate that this proposal was not intended to be a comprehensive and accurate design for a new town. As it is evident, planning and design process of any new town is very complicated in nature, and it requires a team of professionals in many fields to examine comprehensively the social, physical, environmental, political, and economical factors which are involved in planning and design of a city.

This urban design project could be considered as a schematic physical design proposal for the metro town.

Regional Objectives of the Metro Town

As a solution to present day problems of urban sprawl and inefficiency, the Metro Town concept has five general objectives.[2]

1. To influence future urban growth of the region into specific pre-planned areas.
2. To limit urban sprawl by discouraging development outside metro town areas.
3. To group regional activities that support common services such as parking and public transportation and reduce the cost of public utilities.
4. To provide greater convenience in the interrelations of urban activities.
5. To develop several specific areas throughout the metropolitan region containing high density residential and activity generators including transit terminals as a framework for an urban mass transit system.

Notes:

1. Metro-Center, A report by Metropolitan Planning Commission, Kansas City Region, Oct. 1971, p. 1.

2. Metro-Center, A report by Metropolitan Planning Commission, Kansas City Region, Oct. 1971, pp. 3-8.

CHAPTER III

CHAPTER II

THE METRO TOWN CONCEPT AND STRUCTURE

Definition and Concept

Metro Town is basically a satellite new town. A new town as defined by the Urban Land Institute is

> a land development project having an acreage sufficiently large to encompass land use elements of residence, business and industry, which, when developed, provide: 1) opportunities for living and working within the community; 2) a full spectrum of housing types and price ranges; 3) permanent open space in passive and active recreation areas with sufficient land on the periphery to protect the industry; 4) strong aesthetic controls; and 5) sufficient financing to provide money for initial development needs.[1]

A more detailed definition, slightly paraphrased, has been given by the advisory commission on inter-governmental relations:

> . . . A new town is an independent, relatively self-contained planned community of a size large enough to support a range of housing types and to provide economic opportunity within its borders for the employment of its residents. It is large enough to support a balanced range of public facilities and social and cultural opportunities. It is surrounded by a green belt of open space which serves to relate it directly to the surrounding countryside and to limit its size within a predetermined range regarding both population and area. Within reasonable limits, the proportions of the total area to be used for industrial, commercial, and residential purposes, for public facilities, and for open spaces are specified during the planning process. The desired density of population overall and its relationship to open space are also indicated. New towns are started on previously undeveloped land and are built by staged development over a period of time.[2]

Metro Town could be defined as an highly efficient planned new town. Built around a high activity core area which could be considered as a regional center where cultural, educational, medical, financial, and other institutions, businesses and government are tightly clustered. The core area has accessibility to the regional mass rapid transit and to the major arterial highways, which provide linkage necessary for a total transportation system that provides access to regional activities.

Aims of the Metro Town

The aims of the Metro Town could be outlined as follows:[3]

- The town should have an inherent structure that is easy to understand.
- The main elements of the plan should be arranged to assist in the design of the town as an entity.
- It should be compact without sacrificing standards of open space.
- Urban character should be achieved.
- The town center should be the focal area of the town in social, business and intellectual life.
- At least 50% of the population of the town should be within 15 minutes walking distance, and the rest of the town within 15 or 20 minutes driving distance from the core area of the town.
- An efficient system of roads and highways should link all the communities to the core area and regional highways.
- The Metro Town should provide an environment which will maximize the choice of housing accommodations for citizens of all income levels.

- It should also provide adequate public facilities, including those needed for education, health, social services and recreation.
- Use of private automobile for the purpose of circulation should be minimized, especially for the high and medium density residential areas which are in walking distance of the core area.
- The core area should be pedestrian oriented. The parking and roads could be placed around or below the center so it would not interfere with pedestrian circulation.
- A system of pedestrian streets should be provided within and between the residential areas of the town.
- A system of open space should also be considered for the Metro Town and it should be within easy access from all different areas of the town. These open spaces could also be used to define communities, neighborhoods, and other areas of the town.
- New technological innocations for a better and more efficient system of transportation, utilities and building construction should be considered.
- A third dimension (verticality) should be added to land use and zoning in order to make better and more efficient use of land and activities.

Location and Size

To determine the location and size of these Metro Towns, the planning staff of the Kansas City Metropolitan Planning Commission projected and added

the population for the next twenty years of geographic areas called origin-destination (O-D) zones around the proposed Metro Town core. The population of each Metro Town area was forecast by five years' increments (Table A).[4]

The population projection indicated that all the potential Metro Towns would have a population of 200,000 or more by the year 1990. And this figure was chosen by the Metropolitan Planning Commission to be the desirable size for these Metro Towns.

Table A. Population Projection of the Proposed Metro Towns.

Metro Town	1970	1975	1980	1985	1990
Lee's Summit	53,153	77,634	112,880	115,178	201,473
Liberty	92,929	119,684	115,112	198,678	294,871
Independence	153,964	180,061	216,600	261,933	313,257
Platte County	50,963	77,243	112,643	157,098	212,130
Wyandotte	78,372	97,468	124,898	153,788	200,147
Olathe	170,996	226,356	299,608	385,704	499,636
Red Bridge	172,059	213,580	264,639	318,822	376,554

Site Considerations

For the purpose of this study, one of the proposed Metro Towns was selected for detailed site and design studies. The selected Metro Town is located northeast of Kansas City region, near Liberty in Clay County, Missouri. The town will be named "Liberty Metro Town" (Figure 1).

The site is outlined by four regional highways. I-35 and I-435, already existing, U.S.71 By-pass and Missouri Route 152 are proposed in the Kansas City Region Transportation Plan - 1990.[5]

The site is predominantly undeveloped at the present time, and is

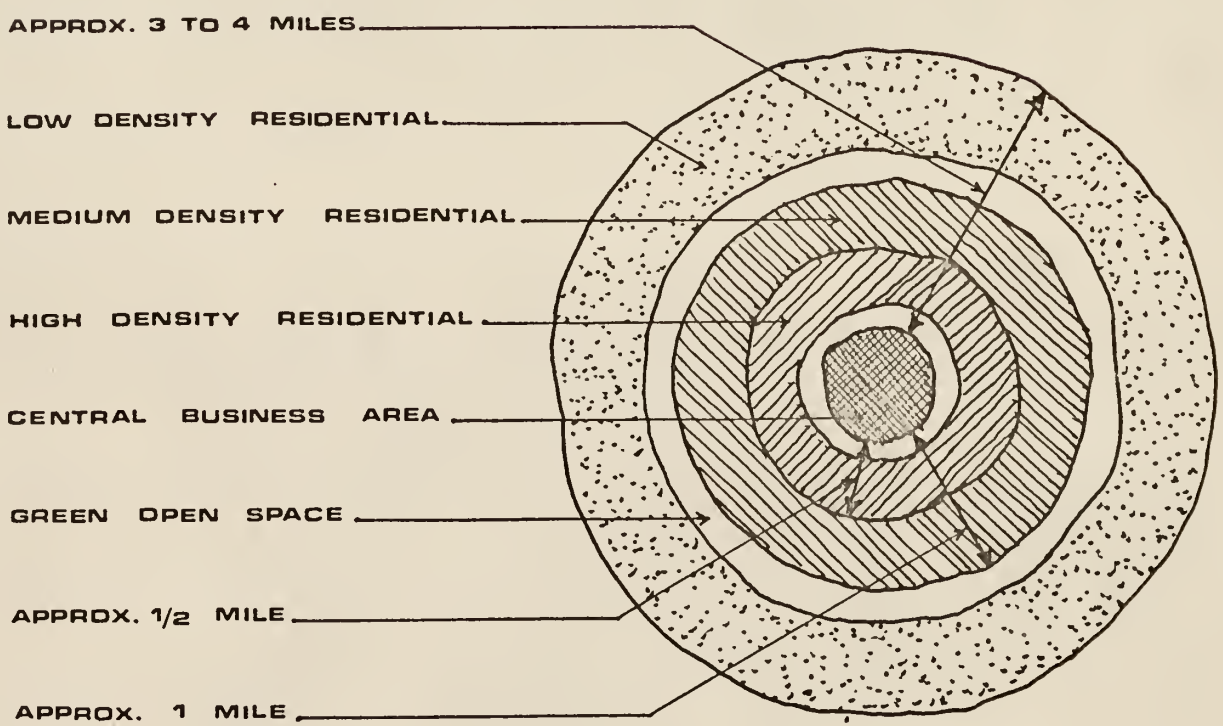
mostly used for agricultural purposes. The existing community of Liberty is located in the south portion of the site, and it has been included as a residential district in the Metro Town Plan.

The focal point of the site would be a lake created at Fishing River, a project which has been proposed by authorities in Clay County.[6]

The Shape and Structure of the Town

The general shape and structure of the town was based on two major factors: the concept and aims of the Metro Town, and the natural and man-made features of the site (the natural features would be topography, rivers, lakes, woodlands, etc., and the man-made elements are major transportation corridors, the proposed lake, existing communities, etc.).

The town has been structured basically in concentric form with the core area in the center (Figure 3). The idea of a centralized town has been developed in order to reconcile the aims of coherence and compactness with ample standards of open space functions, and in order to achieve a variety of residential areas without disintegrating the town. The central area, which is the focal area of the town in social, business and intellectual life is the culmination of the concept of coherence and compactness, and it in turn is surrounded by a belt of open space. The high density and medium density residential areas surround the open space. The high density areas within 1/2 mile walking distance and medium density areas within one mile distance from the core area, contain enough residential population to support a high level of shopping in the center. The shape of this concentrated central district is basically determined by that of the core area it encloses. This area is outlined by major urban traffic corridors, which in turn define its edge.



3 **conceptual town structure**

The core area of the Metro Town needs a form which will allow it to be accessible to the maximum bumber of vehicles and pedestrians. At the same time, its attractiveness as the town's main regular gathering place and social center will largely depend on its compactness and intimacy. For this reason as well as to be efficient as a shopping center it should be continuous. A linear form has therefore been adopted for the central area as best meeting these needs. A greater population can surround a linear core area within a given distance than is possible within a radial or other forms (Figure 4).[7]

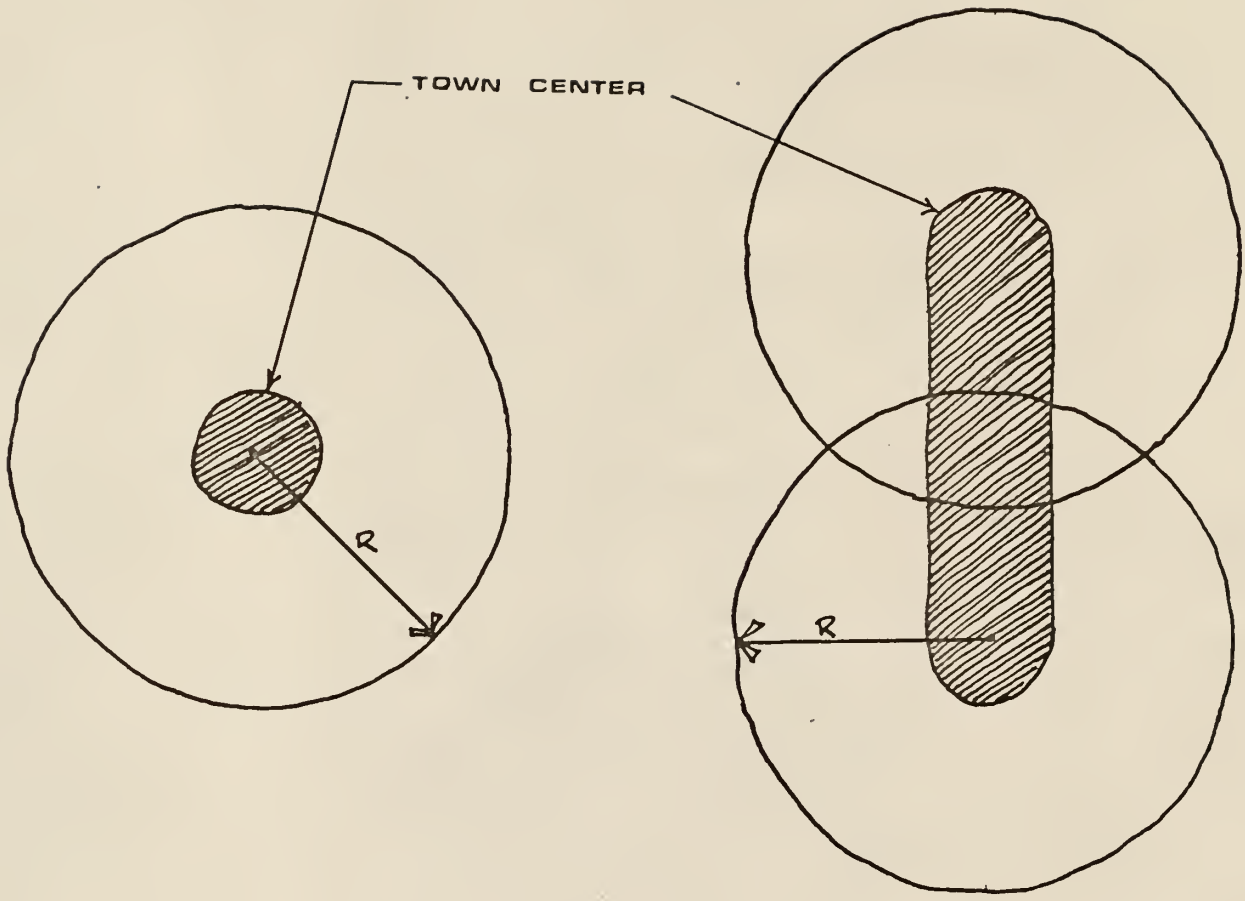
Another reason influential in producing a predominantly linear center was the need to develop an efficient transportation system within the core area. As it will be discussed in more detail later, the internal public transit will serve the area best within a linear form.

The industrial park was placed in the east side of the town; its position gives easy access to the railway, regional highways, and the town's major traffic corridors.

The concentrated central district which contains the core area, high and medium density residential areas, is surrounded by a belt which has been planned for low density residential use. This area contains eight villages which account for about 50% of the Metro Town population. The present community of Liberty will constitute one of the villages in the Metro Town.

The neighborhood concept used in this project is similar to that of Clarence Stein's "The Neighborhood Unit Theory," which has been used very successfully in many new towns in the United States and England.[8]

The neighborhoods are defined by their center which contains the elementary school, shops, some neighborhood level services, local park and



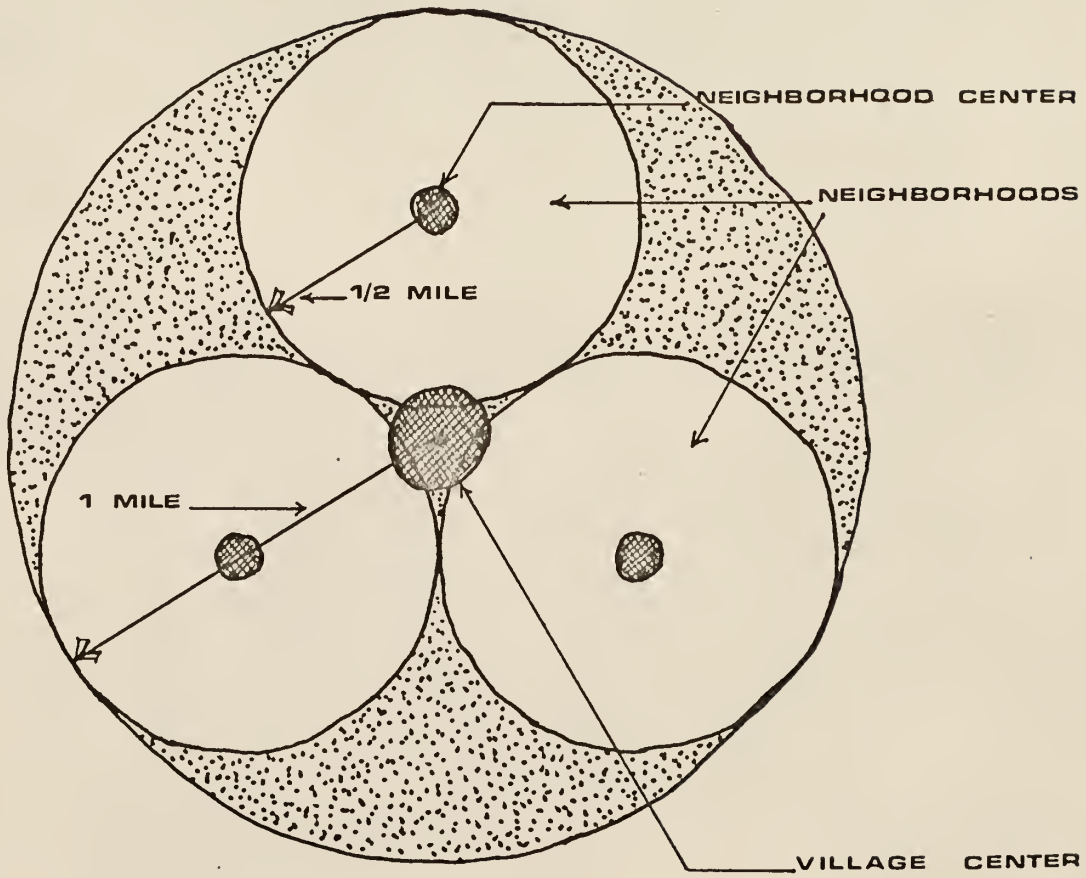
4 **general shape of the core area**

playground. The main principle of the concept is the 1/2 mile (10 minutes) maximum walk from the most distant dwelling to the neighborhood center. A group of three or four neighborhoods are served by a village center which contains larger commercial stores, offices, village hall, theatre, a middle school, and recreational facilities. The radius for walking distance to the village center is about one mile (20 minutes) walk (Figure 5).

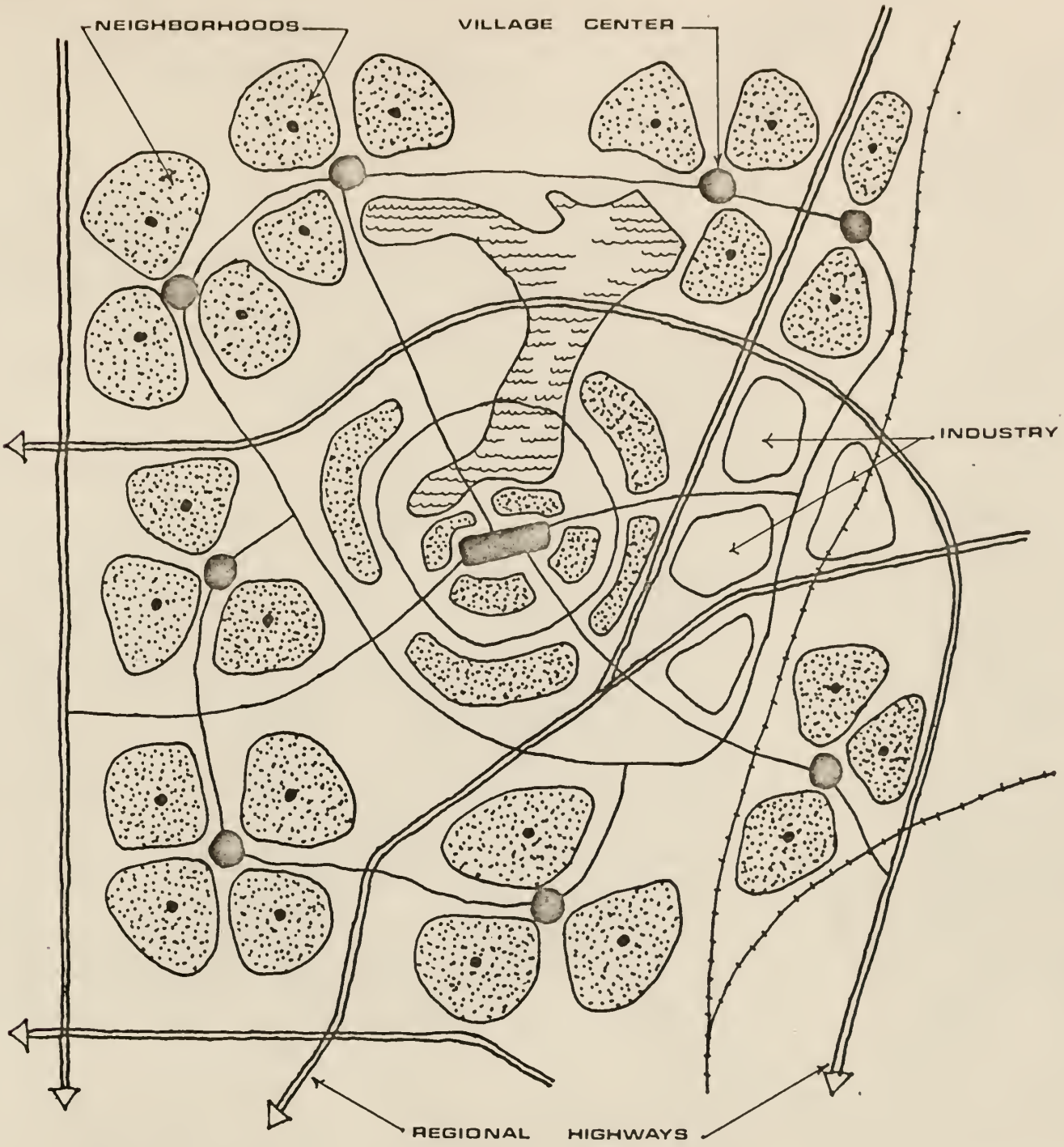
All the village centers are in direct access to the town's major roads, and this provides a great accessibility between the centers and the town core area. All the village centers are within three miles' radius of the core area.

All neighborhoods, villages, and other districts of the town are defined with a system of open space which runs continuously through the Metro Town.

The general shape and structure of the Liberty Metro Town is shown in Figure 6.



5 **The Neighborhood Unit Concept**



6 **general shape and structure of the Liberty Metro Town**

Notes:

1. Urban Land Institute

2. T. C. Peng and N. S. Verma, New Town Planning Design and Development: Comprehensive Reference Materials, 1971, pp. 1-2.

3. The aims of the Metro Town outlined here were developed by the author of this report. Some of them are similar in general to the goals and objectives of the four new towns discussed in Appendix A.

4. Metro-Center, a Report by Metropolitan Planning Commission Kansas City Region, Oct. 1971, p. 2.

5. Regional Plan, a Report by Metropolitan Planning Commission Kansas City Region, January 1971.

6. KCIA Development Plan, a joint planning project of the Metropolitan Planning Commission, Kansas City Region, and The City Development Dept. of Kansas City, Missouri, 1970, p. 34.

7. Kurt Rowland, The Shape of Towns, 1966, p. 132.

8. Brown Miller, Neil J. Pinney and William S. Saslow, Innovations in New Communities, 1972. Appendixes D, pp. 1-7.

CHAPTER III

CHAPTER III

METRO TOWN DEVELOPMENT PLAN

Introduction

The Comprehensive Development Plan has probably been best defined by Gallion and Eisner in their book Urban Pattern.

> The Comprehensive Development Plan is a guide to orderly city development to promote the health, safety, welfare, and convenience of the people of a community. It organizes and coordinates the complex relationships between urban land uses. It charts a course for growth and change. It expresses the aims and ambitions of a community, delineating the form and character it seeks to achieve. It reflects the policies by which these goals may be reached. It is responsive to appropriate change and to maintain its essential vitality, is subject to continual review. It directs "The physical development of the community and its environs in relation to its social and economic well-being for the fulfillment of the rightful common density, according to a 'master plan' based on 'careful and comprehensive surveys and studies of present conditions and the prospects of the future growth of municipality,' and embodying scientific teachings and creative experience. In a word, this is an exercise of the state's inherent authority, antedating the constitution itself, to have recourse to such measures as may serve the basic common moral and material needs, planning to this end is as old as government itself - of the very essence of an ordered and civilized society.[1]

In a simple term, it could be said, The Development Plan of Metro Town, is a guideline which formulates the general form and physical development pattern of the town. It weaves together the goals, objectives and programs of Metro Town into a physical fabric which will operate as a total community.

Although there are several elements forming the Development Plan of Metro Town, only a few have immediate physical implications on a large scale, and the scope of this project is limited to these.

There are five elements of Development Plan which can be said to be the key factors in determining the physical urban environment. They are residential development, multifunctional centers, industrial zones, transportation and circulation network and urban landscape system (Figure 7).

This chapter will discuss these five elements of The Development Plan individually and show how they work together to form the physical urban environment of this town.

Residential Developments

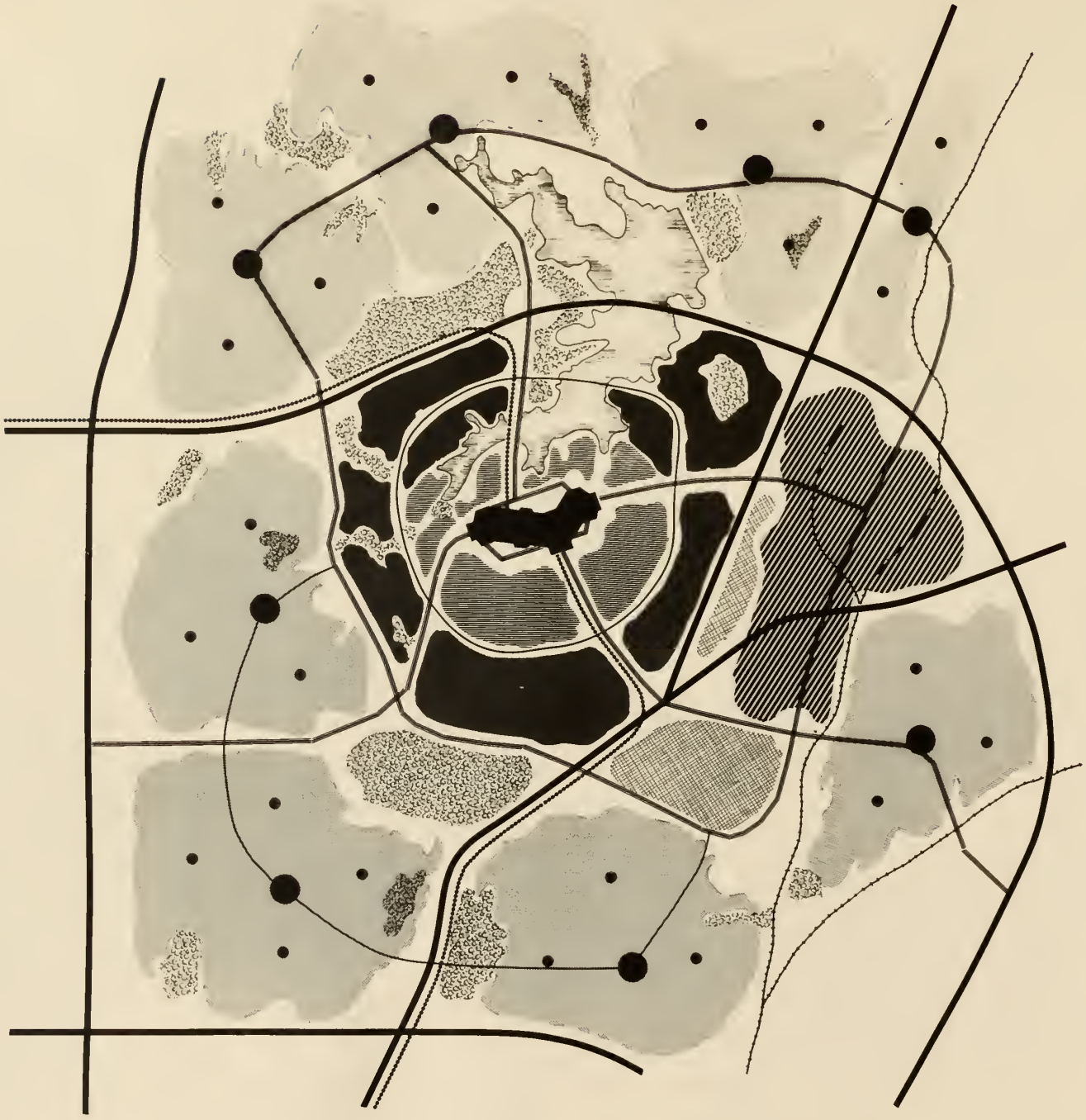
This element of the town is probably the most important one in the Development Plan because this would account for approximately 40 per cent of the total land (approximately 7,000 acres).

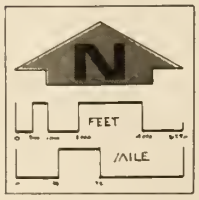
The residential areas of the town have been generally divided into three zones, high, medium and low density areas. The high density residential areas clustered around the town core area and gradually decrease to a medium density and finally to a low density belt.

The neighborhood principle of urban design is used as the basis of the physical arrangements of housing, streets and public services in low and medium density zones. The high density zones, because of their very close proximity are designed as an integral part of the core area.

1 - The High Density Residential Zone

This is an area around the town's core area with a belt of green open space separating the two. Most units in this area are within one half mile





7

DEVELOPMENT PLAN

LOW DENSITY AREA
MEDIUM DENSITY AREA
HIGH DENSITY AREA
INDUSTRIAL
TOWN CENTER
LAKES
MAJOR PARKS
PUBLIC
OPEN SPACE
COMMUNITY CENTER
NEIGHBORHOOD CENTER

or ten minutes walking distance of the core area. This residential zone would account for twenty per cent (40,000) of the total population of the town.

This area would have a character of a residential habitat, with small man-made mountains, stacked houses and garden terraces, overgrown from roof to roof with a private garden landscape. There are also several clusters of high-rise structures (ten to twenty floors high) located in strategic locations, which consist mainly of small apartments suitable for young married couples, bachelors and elderly people, and they could very well act as landmarks and focal points for functional orientation.

The residential density of this zone is proposed to be around one hundred and fifty persons per acre (exclusive of roads, pedestrian streets and public open space).

2 - The Medium Density Residential Zone

This element of the town accounts for about thirty per cent (60,000) of the Metro Town population. This zone will represent an average cross section of the housing development, and thus the average family size would be that of the national average, of approximately 3.11 persons.[2] Development could take the full range of conventional residential forms from two or three story apartment houses to row houses, duplexes, four-plexes, garden apartments, townhouses and others. The net residential density is proposed to be around seventy persons per acre.

The neighborhood units proposed in this zone are similar in concept to those proposed in the medium density residential zones of the Dear-Lake Metro Town in the District of Burnaby Canada,[3] (see Appendix A). The neighborhoods are basically in linear form, approximately one mile long by one

half mile wide. A pedestrian main street running along the center of the rectangular shape is the immediate focus of the residential area. And by placing the community buildings such as the elementary school, shops, churches, libraries, etc. on this pedestrian main street, it would make it truly a socially and visually coherent environment.

A collector street loops around each neighborhood which directs all the local traffic to an arterial street. So the neighborhoods are generally pedestrian oriented with all the internal walkways going inward to the pedestrian main street and the vehicular circulations from all the neighborhood parking lots or structures going outwards to the collector loop.

3 - The Low Density Residential Zone

This zone which generally accommodates the single family housing would contain about fifty per cent (100,000) of the Metro Town population. The net residential density for this zone is chosen to be around eighteen persons per acre of land. Assuming an average of 3.6 persons per family,[4] it would make it five dwelling units per acre, which is an ideal density for this type of housing development.

The neighborhood principle of urban design, which is both pleasant and eminently practical, has been maintained throughout this zone. The major characteristics of the neighborhood principle used in this zone are that the elementary school along with some neighborhood commercial and business facilities provides a natural focal point in residential area, and the attendant neighborhood can be accommodated within approximately one half mile radius (ten minutes' walk). Within such an area, a sufficient number of dwelling units can be accommodated (approximately 4,000 people) to sustain and support

the school population and a local shopping center (see Appendix B).

A major collector street loops around each neighborhood and collects the local traffic from the cul-de-sac roads. A network of pedestrian streets provide an easy access from most dwellings to the neighborhood center, which in turn is connected to a major arterial street by a service road, thus an easy and more efficient access to the public transit.

Three neighborhoods are grouped into a village whose focal point is a commercial and business center along with a middle school and some community level cultural and recreational facilities. The village center which has a direct access to the neighborhood collector streets and to a major town arterial is within one mile (twenty minutes' walk) of most dwellings in the community. A belt of open space around the village center, would provide an ideal place for some outdoor sports and recreational activities.

Village centers are located with respect to access to the town core area and other village centers, and to natural features of the terrain. It is planned that the village institutions and center facilities will be of sufficient interest and diversity one from the other that a large degree of interchange between villages will take place.

Multifunctional Urban Centers

These components of the Metro Town are major centers of all activities in the communities and the town, and they have been the key elements in forming the structure of the Metro Town.

Combination of a large number of urban functions and activities within one physical framework is considered here as a multifunctional center. These centers not only function as a shopping center but business, recreation, education, etc. This would make it truly a "People's Place," a place where

a cross-mixture of people (old, young, blue collar and white collar workers, poor and rich) can meet and interact. Location of these centers also provides a maximum accessibility for the population they serve.

The Neighborhood Center, the Village Center and the Metro Town Core Area are the three categories of multifunctional urban centers that are proposed for this Metro Town, and in the following they will be briefly discussed.

1 - The Neighborhood Center

This is the smallest multifunctional center in the town, and it is located in the central part of the neighborhood. It services a population of 4,000, within a one half mile radius. Its major functions are: essential day-to-day retail stores (supermarket, drug store, variety store, small hardware store, etc.), personal services (beauty shop, barbershop, cleaners and coin laundries), elementary school, day-care center, restaurant and coffee-shops, recreation facilities (swimming, tennis, handball, basketball, playground, playfield, etc.), parking facilities and a community room.

2 - The Village Center

The Village Center is larger than the Neighborhood Center, and it also extends the function of it. They generally serve three neighborhoods (there is one village center in the Metro Town which serves two neighborhoods, and another one which serves four), or about twelve thousand people within a one mile radius. Other components of the center could be outlined as: medical facilities, fire and police departments, community rooms and offices, village hall, service stations, middle school, teenage center, junior department stores, bank, library, some general offices and a gymnasium.

3 - The Metro Town Core Area

This is the largest multifunctional center of the Metro Town. It is primarily designed to serve the population of the Metro Town but since it is considered as a regional center, it may provide some services for the neighboring communities. This element of town will be discussed in more detail in Chapter IV.

Transportation and Circulation System

Of all the elements of the Development Plan, transportation and circulation systems have been the most important in structuring the plan. It has also established the skeleton for most other systems.

The main principle used in planning the Metro Town's Transportation and Circulation System has been to limit the use of private automobiles and to develop a design that encourages more walking. In a study conducted in the New Town of Reston, Va., it has been noted that the need for other transportation facilities can be cut in half or more by providing pedestrianways that conveniently link residential areas with social, cultural and recreational areas.[5]

In general it could be said that the circulation in the town consists of two environments, walking and driving, both designed for man, but one being used by man aided by machine.

The driving environment is designed for a man in a vehicle at speeds of thirty miles per hour and above; the other is the environment of the pedestrian at speeds of three miles per hour and below. The driver of a motor vehicle sees, feels, and comprehends different things to the pedestrian, and equally important does not sense many things that the pedestrian experiences.

Both the vehicular and pedestrian systems are equally important and they should both be planned and designed as an integral part of one another in order to achieve an efficient transportation and circulation system for the Metro Town.

1 - Vehicular Circulation System

Vehicular circulation system of the Liberty Metro Town has been based on a hierarchical sequence. The total traffic system is divided into sub-systems, and the subsystems ordered into categories of higher and lower volume and speed. Anyone subsystem is supposed to connect only with sub-systems one or two categories above or below (Figure 8).

The vehicular circulation pattern of the Metro Town consists of the following categories of sub-systems:

I - The regional corridors (heavy volume, fast-moving, regional traffic)

II - The town corridors (heavy volume, fast-moving, internal traffic)

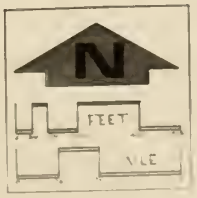
III - The local arterials (fast-moving, medium volume, short-range through-traffic)

IV - The residential collectors (slow-moving, medium volume, destination traffic)

V - Commercial parking and loading areas (extremely slow, large volume destination traffic)

VI - Local streets or residential cul-de-sacs (extremely slow, medium volume destination traffic)

Four regional highways passing through the town area provide access between the Liberty Metro Town and other regional centers in the Kansas City



8

TRANSPORTATION PLAN

REGIONAL CORRIDOR
TOWN CORRIDOR
LOCAL ARTERIAL
COLLECTOR STREET
LOCAL STREET
RAIL - ROAD
REGIONAL RAPID TRANSIT
RAPID TRANSIT STATION
MAJOR INTERSECTION

Metropolitan area (highway I-35 and I-435 already existing U.S.71 by-pass and Missouri Route 152 are proposed).

The town corridors are the major through traffic highways which pass by and connect most of the traffic generator centers (Town Core Area, Village Centers, Industrial Park, Regional Parks, etc.) to one another and to the regional corridors.

This schematic major road plan can also be interpreted as consisting of one system which carries the main freight traffic (categories I and II), and another system which carries the bulk of the car traffic (categories III, IV, V, VI). This shows that on quite a number of roads, freight traffic has been separated from other forms of traffic.

A complete and clear separation between vehicular and pedestrian circulation has been planned to achieve a safe and efficient system of circulation in the Metro Town. Separation by levels (underpass, overpass) which is the most desirable method has been used wherever necessary and possible.

Three types of parking have been proposed for the Metro Town. In the Core Area and the High Density Residential Zone where as much space as possible is needed for play areas and pedestrian access, the garages are either under buildings or built over, with the roofs used for public uses. In the Medium Density Residential Zone, the majority of permanent and visitor parking spaces will take the form of surface garage groups, which are located within easy access to housing clusters. And in the Low Density Residential Zone, each dwelling has its own private parking space, preferably included in the design of the house.

2 - Public Transportation Systems

One of the major goals of the Metro Town concept is to provide an

urban lifestyle by making the assets of the city available to all without committing them to the responsibilities of private automobile. An efficient public transportation system is the only means of transforming urban islands into a total urban system.

Two kinds of public transporation are needed in the Liberty Metro Town. One is an internal, which should be an integral part of the layout of the urban nodes. The other is metropolitan-wide and is needed to give each residence full access to the Kansas City Metropolitan area.

A system of rapid transit has been proposed for the Kansas City region by the Mid-America Regional Council, which connects all the major centers of the region.[6] This rapid transit is proposed to go through the Liberty Metro Town along the major transportation corridors, and four stations, approximately three miles apart are placed in accessible locations along this line (one in the Core Area), which serves the Metro Town community (see Figure 8).

The internal needs of public transportation could be accommodated by two systems: A rapid bus system, which provides access between the major centers of the town (Village Center, the Town Core Area, Industrial Park, etc.), and a dial-a-ride system, to serve the lower density areas.[7]

Dial-a-ride system, which is designed and proposed by the urban systems laboratory at the Massachusetts Institute of Technology, is a door to door demand-activated system that is programmed for computer. Small buses would follow flexible routing instructions radioed to the driver from a computerized central scheduling point. Anyone desiring to go from point A to point B could phone his origin and destination into the computer, and the computer would notify the closest bus going into that general direction to pick up the person and take him where he desires.

3 - Pedestrian Circulation System

Pedestrian access, as it was mentioned before, should be a circulation system in its own right, equal to the car systems and public transportation. If it becomes workable it will also take some of the load off the traffic on the streets. To make walking a logical alternative, certain standards have to be considered.

To make an urban system pedestrian oriented, all major layout dimensions should be determined by walking distance parameters. All incidental design should attempt to achieve a high level of perception. Attention should be given to detail, to change in elevation, to a balance of open space and enclosed spaces, to the comfort and safety of people walking, to a feeling of purpose and participation, and without the intrusion of automobiles.

Walking, and the way to make people walk, is a question of mood. For pedestrian movement to really take place, the mood has to be designed into all areas of the town. Not individual buildings, but whole sections of townscape should be designed with this in mind. The designing of pedestrian spaces is not just a functional necessity, it is environmental design at its most human level.

The Liberty Metro Town is basically designed as a pedestrian oriented town. The access distance of 1/2 mile (10 minutes' walk) which has been used in many new towns as a reasonable walking distance for most people, was applied in the Metro-Town design.[8]

Like the car systems, the pedestrian system breaks down into various categories, each with a different feeling, serving different functions and flowing from one to the other in a continuous network. They range from the semi-private outdoor spaces (walkways and play spaces) to the pedestrian main streets (focal point of housing clusters), to the pedestrian malls (semi-closed

spaces in the multifunctional centers), and to the trail system which generally follows the green open space network throughout the town.

Urban Landscape System

Urban Landscape System should be seen and treated as an essential part of planning process for urban development. Urban landscape or open space is a vital element in our environment. It performs necessary and positive functions such as providing recreation opportunities for people and protecting physical resources like water, air, soil, plants, and animals.

In general the Urban Landscape System should be planned to complement the natural features (topography, lakes, etc.) and the built-up areas of the town. And it should be a connector of activities rather than a disjointed collection of dispersed green spaces.

The Landscape System has been designed to create a continuous green space in the Metro Town. It is structured into various landscape types, ranging from the hard edged planter type landscape in the multifunctional centers, to the boulevard type in the pedestrian main streets, to the green linear spaces around the neighborhoods, villages, and along the major roads, and from there to the town's major parks.

The system attempts to pull the whole town together with a free flowing continuous network of green spaces, parks and trails in which people can move freely, and in the process arrive at logical destinations. These destinations would be the bank of the rivers and creeks, the lakes, recreational and sport fields, major parks, and other neighborhoods in the Metro Town.

The green space network contains only the slow moving traffic (people, bicycles, horses, etc.) so it should only connect with the pedestrian ways, trails, bridle paths, etc. All others should cross at separated levels.

Industrial Centers

Industrial location is a function of accessibility for delivery and shipment, floor area necessary for the type of activity, and the relationship of the activity to surrounding land uses.

A group of four industrial parks, clustered together are located to the east of the Metro Town; its position gives easy access to the railway (Burlington Northern), three regional highways (I-35, I-69, and U.S.71 by-pass), and the town's major corridors.

Notes:

1. Gallion and Eisner, The Urban Pattern, 1963, p. 187.

2. Census of Population: Population and Housing Characteristics for the United States, by State - Supplementary Report, U.S. Dept. of Commerce. Bureau of the Census, p. 1-1.

3. The Planning Department of the District of Burnaby B.C. Canada, The Urban Structure, 1971, p. 134.

4. Joseph De Chiara & Lee Koppelman, Planning Design Criteria, 1969, p. 200.

5. James Bailey, New Town in America: The Design and Development Process, 1973, p. 77.

6. Rapid Transit for Kansas City, a report by Mid-America Regional Council, Kansas City Region, 1972.

7. Brown Miller, Neil J. Pinney, William S. Saslow, Innovation in New Communities, 1972, pp. 111-112.

8. T. M. Cartsonis, "Ten Minutes Town," Landscape Architecture, Oct. 1966, pp. 40-42.

CHAPTER

CHAPTER IV

TOWN CORE AREA

Requirements of the Core Area

The Town Core Area (central business district-downtown) is the chief administrative, business, entertainment and cultural center of the town as a whole.

As an administrative center it is the meeting-place of the city leaders and the work-place of local government and other officials, and for these purposes requires buildings such as the City Hall, Court House, offices for government departments, Police station, and Main Post Office.

As a business center it is a place where the town people go to buy luxury or high-cost goods, to search for a bargain, or to obtain a wider choice than can be found in the neighborhoods. As a business center it is the home of commercial and professional firms, and for the wholesale distributors supplying the shops with goods. It contains every kind of commercial space, from large departmental stores to the small intimate shops selling luxury articles; and all kinds of office and warehouse buildings, from multi-story office blocks used by big corporations to the small private offices used by individuals.

As an entertainment and cultural center it is the place where the citizen goes to watch a play or to see movies; where he should be able to listen to serious music; to visit exhibitions of arts and crafts; to read or borrow books; to dance; or to eat good food. It is the place where different groups with particular interests meet to pursue these interests, (the music

club, the Chamber of Commerce, etc.). Buildings appropriate to it are the play house, movie theatre, concert hall; museum, art gallery and library; restaurants, night clubs, coffee houses, and all the miscellaneous halls, and rooms officially known as "places of public assembly."

Finally the Core Area is a meeting place for the population as a whole, in which such activities as conventions, political rallies, parades, and the celebration of important anniversaries take place. Thus large spaces such as a civic square, an auditorium and possibly an amphitheater should be provided.[1]

The Core Area, because of the unique concept of Metro Town, is used very intensively by the population. Thus it should be truly a "people's place" with the physical and spatial elements arranged in a way to create an environment which is essentially humane and convenient to use.

In the field of environmental design, form is a function of appearance, and appearance is a function of the viewer's perception. Thus in order to get some ideas of how such an urban place should be arranged it is necessary to study and find how people would generally perceive such an environment.

Several general perceptual criteria have been summarized by Mr. Kevin Lynch, a well-known environmental designer.[2]

1. Sensations should be within the range of comfort, and not interfere with the activities that people wish to pursue: not too hot, noisy, bright, cold, silent, loaded or empty of information, too steep, dirty, or clean. Climate, noise, pollution, and the level of visual input are perhaps the most critical factors.
2. Within this range of toleration, a diversity of sensation and setting will give the inhabitant a choice of environment he prefers, and correspond to his pleasure in variety and change.

3. Places in the environment should not only be diverse, but have a clear perceptual identity: recognizable, memorable, vivid.
   This quality of identity, or a "sense of place," is the corner stone of a handsome and meaningful environment. Without it an observer can not make sense of his world, since he can not distinguish or remember its parts.
4. These identifiable parts should be so arranged that a normal observer can mentally relate them to one another, and understand their pattern in time and space. This is not a universal rule, since there are occasions when it is desirable that parts of the environment be hidden, mysterious, or ambiguous. But at least the general framework of a living space, and the linkages between its public places, must be legible - in the street and in the memory.
5. The environment should be perceived as meaningful. That is, not only should its visible and identifiable parts be related to each other in time and space, but they should seem to be related to other aspects of life: the natural site and its ecology, functional activity, social structure, economic and political patterns, human values and aspirations, even to individual idiosyncrasies and character.

With these general conceptual factors as a guideline, along with a hypothetical program arranged to satisfy the general concepts and aims of the Metro Town, a schematic design has been proposed for the Core Area.

The physical planning or design of the Core Area was treated as a system design with three sub-systems of "Patterns of Activity," "Patterns of Circulation," and "Physical Form" as parts of the whole. The parts were approached independently in the beginning and gradually were built into a total design.

Patterns of Activity

For the purpose of planning the Core Area, the various functions and activities were divided into five broad groups: the shopping center, offices, entertainment, wholesale and warehouses, and civic center. The zones are

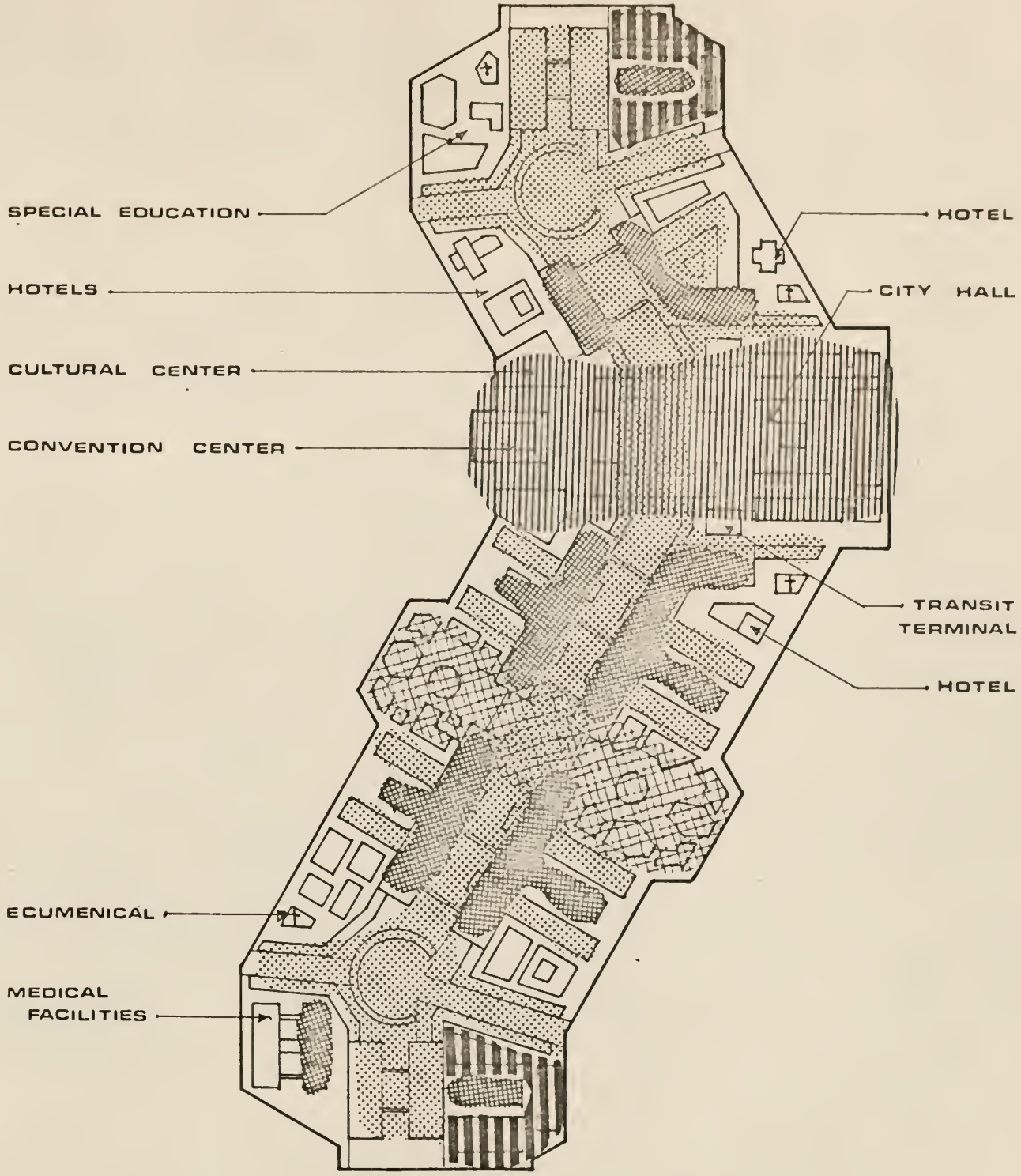
not exclusive in function, and in order to create diversity in use and appearance which is essential to a lively center, some overlapping of functions has been provided. For example, the shopping areas have been penetrated into the entertainment zone while the civic center and church buildings are scattered over the whole area.

Figure 9 shows the general pattern of activities or functional zoning of the Liberty Metro Town.

The success of the Core Area is largely dependent on how well it functions as a shopping mall. This is one of the factors as it was mentioned before that leads to a linear continuous form, which is placed in the center superimposed over the main road and parking. This way it appropriately functions as a magnet. Cars, trucks and buses can drive straight into the Core Area and park directly underneath their destinations.

The continuous shopping zone, by itself, has been divided into several distinct areas with special characteristics. The main shopping street, which runs east and west, contains all kinds of shops and is the focal point of commercial and business activities. At both ends, major department stores and other major shops act as magnets. Two market places consisting of small intimate stores, selling mainly fresh foods and other convenience goods are placed at the intersection of the major pedestrian streets coming into the Core Area from the residential zones. Also a series of covered malls, running perpendicular to the main shopping street, provide shopping spaces with a more controlled environmental condition.

The civic center (containing such activities and buildings as the City Hall, government offices, library, transportation center, convention hall, and cultural centers) and the entertainment center (with activities



9 **Metro Town core area functional zoning**

such as night clubs, restaurants, etc.) are placed as secondary axes perpendicular to the main street. Thus the intersection of this axes with the main street becomes a major circulation focal point and a dominant space in the Core Area. Therefore, these intersections are designed as town squares.

Commercial and private offices are generally planned to overlap shopping zones; thus most of the offices are superimposed above the shops on the main street. The exceptions to this are two office buildings in the medical center, used for the activities related to that profession, and office buildings in the wholesale and warehouse zones, which are used by some commercial firms directly related to these activities.

The wholesale and warehouse activities, because of their special requirements (large floor spaces and direct access to freight service), are separated from other business activities and have been placed close to the department stores and other large shops at east and west ends of the Core Area.

Other special zones in the Core Area are the health and medical facilities, placed at the north-west corner; the special education facilities, grouped in a small campus; and hotels, which are scattered around the civic center zone.

Patterns of Circulation

The circulation in the Core Area has been divided into two general types: Pedestrian and Vehicular movements.

Complete vertical segregation of pedestrians and vehicles has been achieved by proposing a multi-level core area, in which the top platform is used exclusively by pedestrians, and the lower platform by vehicles.

The top platform is connected directly to several pedestrian main streets which pass through the green open space around the Core Area, and link the residential zones to the Core Area.

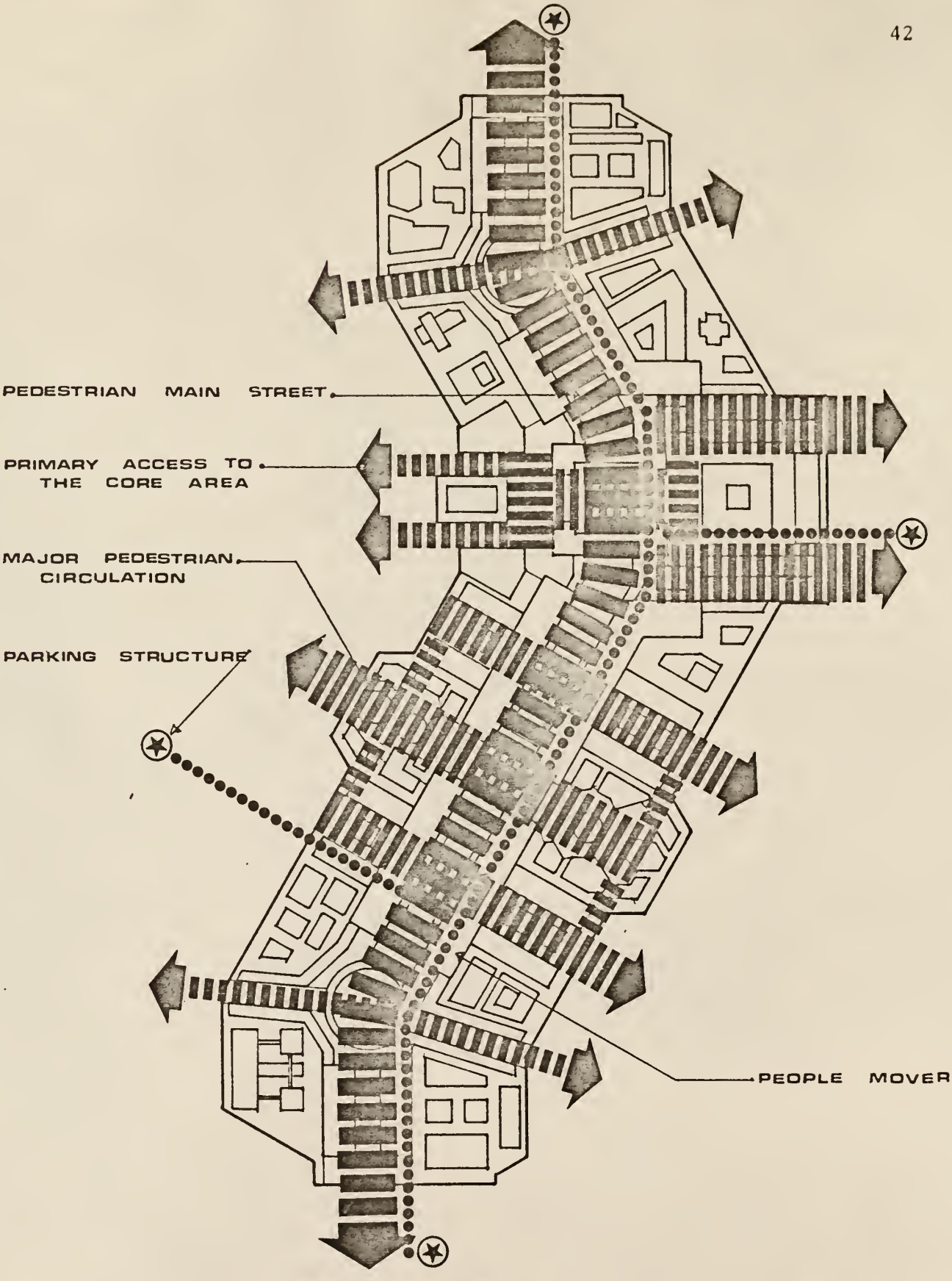
The main shopping street in the center of the top deck is the primary pedestrian magnet, with the secondary pedestrian street connecting it to the Core Area entrances (see Figure 10).

The pedestrian network in the Core Area, which is an integral part of the overall pedestrian system in the Metro Town, is designed as a three dimensional pattern as well. A series of escalators, elevators and elevated walkways connect the major activity areas to the main pedestrian platform as well as to one another.

An internal system of rail transit has been proposed in the Core Area, which runs above the main deck in the major shopping street, and acts as a fast and convenient people mover between the activity nodes of the area (see Figure 10).

The design of the internal road system recognizes the distinction between the transport of people and of goods. Each has its own requirements, which are different from each other. Thus a two level road, one for the circulation of cars and buses, and the other, in the lower deck, for the freight and service vehicles, has been proposed under the main platform in the Core Area. The service road has an easy access to the docking areas which are linked to the top deck with a number of service elevators. The automobile road, whose main function is to circulate private automobiles and public transport, has access to the parking areas, and the entrances to some of the buildings in that level.

A highway loop which is connected to the town's radial corridors,



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Metro Town core area pedestrian circulation

circulates around the Core Area, and functions as primary distributor. The loop road, in most instances, runs through the open green space around the Core Area, with the pedestrian streets bridged over them (see Figure 11).

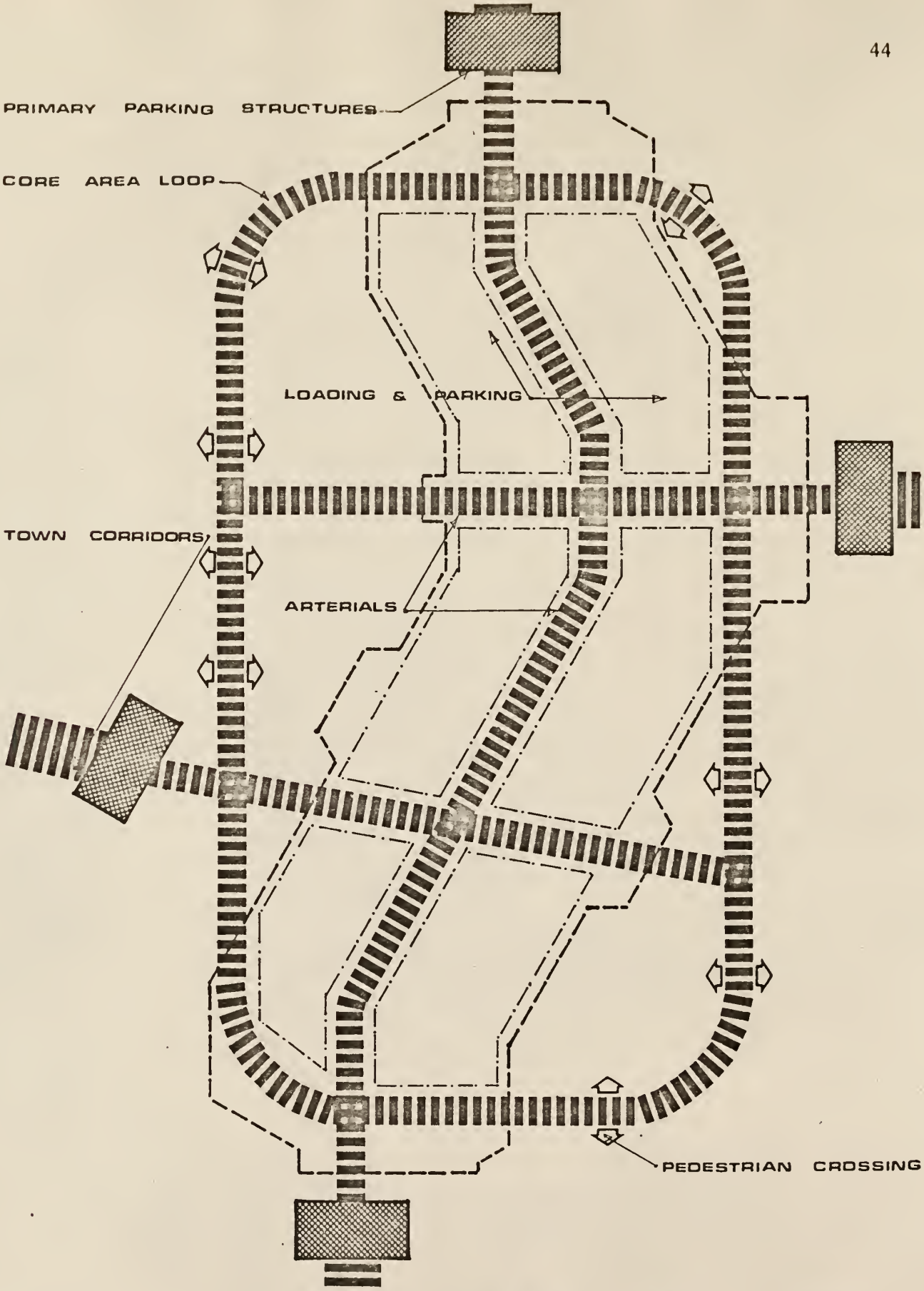
Two types of parking have been provided for in the Core Area: short and long period parking. For long period parking, which would mostly be used by office workers, four parking structures have been provided outside the inner loop, superimposed over the town's radial traffic corridors. Provision of these parking structures outside the loop road would decrease the traffic load in the inner roads.

The short period parking spaces, which are mainly used for shopping, are placed under the main pedestrian deck. These parking spaces are not continuous but are formed in one or two levels, under the major activity areas, and have easy access to the Core Area inner roads.

Physical Form

The Core Area of the Liberty Metro Town is about one mile long and averages one quarter mile in width. It extends in an east-westerly direction with a slight bend to the north toward the lake, with most of the surrounding residential areas looking down into it. This would permit a direct and easy flow of pedestrians from the high and medium density residential areas to the deck of the Core Area.

The Core Area was basically designed as a compact, multi-level center, with the main deck for pedestrians and the lower decks for automobile circulation and parking. With the exclusion of traffic from the main level, it was possible to form a series of urban spaces each of which is designed to be in character with its particular function.



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Metro Town core area vehicular circulation

The proposed design was intended to give the Core Area a special dominant character and make it the visual focus of the town.

A design concept of totality was applied in structuring the Core Area to achieve an urban form and character, which is most essential to the concept of Metro Town. The Core Area, as a totality, has a fabric provided by integrating the masses of buildings and spaces between them to create a visual, physical and special continuity.

In general, three distinct axes form the physical and spatial character of the Core Area. A longitudinal axis, in the center of the main deck, consisting of a series of continuous interrelated spaces with masses of commercial and office buildings around them, gradually stepping down outward, forms the focal area of the core. This area is the hub of all activities and circulation in the Core Area.

A secondary axis, devoted to activities related to entertainment, runs perpendicular to the longitudinal axis. The physical and spatial elements in this area are treated with smaller and more humane scale, to create a friendly and intimate environment which is essential for entertainment activities.

Another axis, also perpendicular and secondary to the main axis, was planned to contain civic and government activities, which should have their own special imageability.

> Government centers at any scale have two requirements: their forms must register as symbols of government functions; they must be located and arranged so as to be part of their environs.[3]

The civic center was designed symmetrically with more formal arrangements of buildings and spaces than the rest of the Core Area, to give it a conceptual identity similar to that of governmental functions.

The intersections of these two axes and the longitudinal axis forms the two town squares which serve several functions. They provide a visual focus and point of emphasis, and a meeting place at the heart of the Core Area.

The green open space around the edge gives the Core Area definition and legibility. With the totality of form applied in design, a sculptural effect is created, which magnifies the urban character of the Core Area in the eyes of the people approaching it from outside.

Contrary to the apparent massive scale of the Core Area as viewed from outside, a human scale of masses and spaces at ground level with penetrations to upper and lower levels has been provided to create an environment which is essentially humane and convenient in use.

For the purpose of the design, floor area requirements for the major activities in the Core Area were developed according to the Table B, which appears in an article by Mr. Larry Smith in the American Institute of Planners Journal.[7] It is important to mention here that these figures are not necessarily ideal ones for Metro-Towns, but were merely used as guides to obtain floor area requirements for certain major activities.

ACTIVITIES	FLOOR AREA PER CAPITA (SQUARE FEET)
RETAIL	20 to 55
OFFICE	2 to 15
PARKING (ON THE GROUND OR IN STRUCTURES)	4 to 16
PUBLIC AND QUASI-PUBLIC	2 to 7
WHOLESALE & WAREHOUSES	5 to 15

(TABLE - B) - Metropolitan per capita floor area requirements for selected activities.

12

CORE AREA PLAN

LIBERTY METRO TOWN , MISSOURI

BEHROOZ SHAMS , K.S.U., 1974

SECTION (A)

SECTION (B)

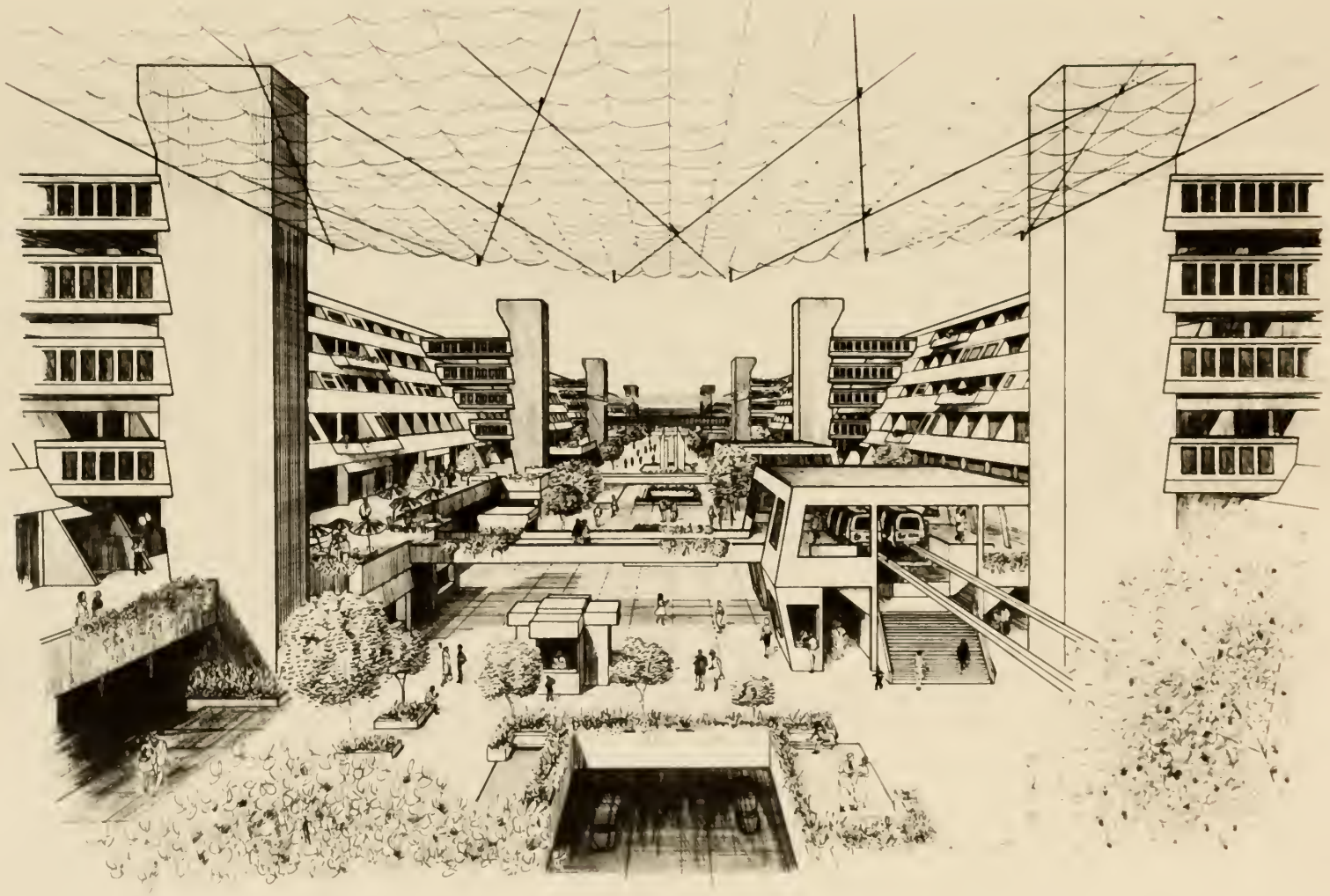
SECTION (C)

13

CORE AREA SECTIONS

LIBERTY METRO TOWN , MISSOURI

BEHROOZ SHAMS , K.S.U. , 1974



PEDESTRIAN MAIN STREET

CORE AREA PERSPECTIVE

LIBERTY METRO TOWN , MISSOURI

BEHROOZ SHAMS , K.S.U. , 1974

14

Figure 15 - Core Area Model (overall views)

Figure 16 - Core Area Model (close-up views)

Notes:

1. For a more complete Table of service components in the town Core Area which supports a population of 200,000, refer to the Tables in Appendix B.

2. Kevin Lynch, "City Design and City Appearance," Principles and Practice of Urban Planning, Municipal Management Series, 1968, pp. 251-255.

3. Paul D. Spreiregen, The Architecture of Towns and Cities, 1965, p. 131.

4. Larry Smith, "Space for the CBD's Function," American Institute of Planners Journal, February, 1961, p. 37.

CONCLUDING REMARKS

The Metro Town proposed in this project is a unique concept in new town design. The concept was formulated to deal with some of the inefficiencies and problems presently identifiable in our urban environments. Problems such as urban sprawl, inefficient use of land in the cities, poor quality of living environment, lack of green open space, inadequate means of circulation and accessibility, etc. have been generally responsible for our urban crisis.

The Metro Town concept calls for a highly efficient, compact, and self supporting satellite town, which offers to its residents an environment which is humane in character and convenient in use.

The plan defines distinct areas for home, work, and play. It proposes a system of landscape which runs continuously throughout the town and defines the elements of the urban area. In its arrangement of housing, schools, shopping and recreation facilities it sketches out a social pattern, and it determines efficient pedestrian ways and road networks. Industry is planned adjacent to the railroads within easy access to regional highways; housing is arranged in distinct neighborhoods with their own shopping and social services; the town Core Area with its business, entertainment and civic groups is placed as a focal of design.

In conclusion, this project should be considered as a conceptual study of the physical planning and design of the Metro Town. It is by no means complete or comprehensive. It could be used as a guideline for further and more detailed studies.

APPENDIXES

APPENDIX A - A REVIEW OF FOUR CASE STUDIES IN NEW TOWN DESIGN

This chapter reviews four of the more significant examples of new communities, which have been influential in establishing the planning and programing of the Metro Town project.

RADBURN, NEW JERSEY[1] (Figure 17)

The community of Radburn in New Jersey was designed in 1923 by Clarence S. Stein and Henry Wright. This was the first attempt to bring the Ebenezer Howard garden city concepts to the United States, and it opened a new era in American city planning.

The plan utilizes super blocks instead of conventional rectangular blocks. The roads are planned for single uses: service lanes for direct access to buildings, collector roads around the super blocks, and arterial roads and express highways for through traffic. There is a complete separation of pedestrian and automobiles. Large open spaces in the center of the super blocks, on which the houses face, are joined together by pathways to form a continuous park.

The elementary school is the center of each unit and within a one-half mile radius of all residents in the neighborhood. A small shopping center for daily needs is located near the school. A grouping of three neighborhood or super blocks served by a high school and one or two major commercial centers form a community.

COLUMBIA, MARYLAND[2] (Figures 18 and 19)

The New Town of Columbia which was designed in 1963, develops further the neighborhood principles of Clarence Stein within the overall planning

context of the entire new community.

The plan is designed to accommodate some 110,000 residents when Columbia is completed in 1981. It contains seven villages clustered around a downtown core, each consisting of three or more distinctive neighborhoods and a village center for shopping and community activities. The 2,600 acres set aside for industrial use are expected to provide employment for some 13,500 persons in light manufacturing and research and development. The downtown is planned as a regional center serving a population of some 250,000 for shopping, educational, health, cultural, and recreational needs. All of the villages, and some of the employment centers are linked together and to the town center by a transit system of small buses operating on their own roadways.

HOOK, HAMPSHIRE, ENGLAND[3] (Figure 20)

The design of the Hook New Town was proposed in 1956 by the Greater London Council. Although this town was never built, its plan reveals a new level of maturity in new-towns planning.

The Hook New Town was designed as a highly compact city, with nearly all of its 100,000 inhabitants within easy walking distance of the town center and industrial locations. For this reason the idea of developing neighborhood units was largely abandoned and higher density housings were integrated with the town center.

Because of predicted rise in car-ownership at the time, it was necessary to provide a substantial road system, leading to the idea of a hierarchy of roads (a further development of the ideas of Le Corbusier and Abercrombie), and a complete pedestrian/vehicle segregation to achieve a safe and satisfying environment in the town.

METRO TOWNS IN THE DISTRICT OF BURNABY, CANADA[4] (Figure 21)

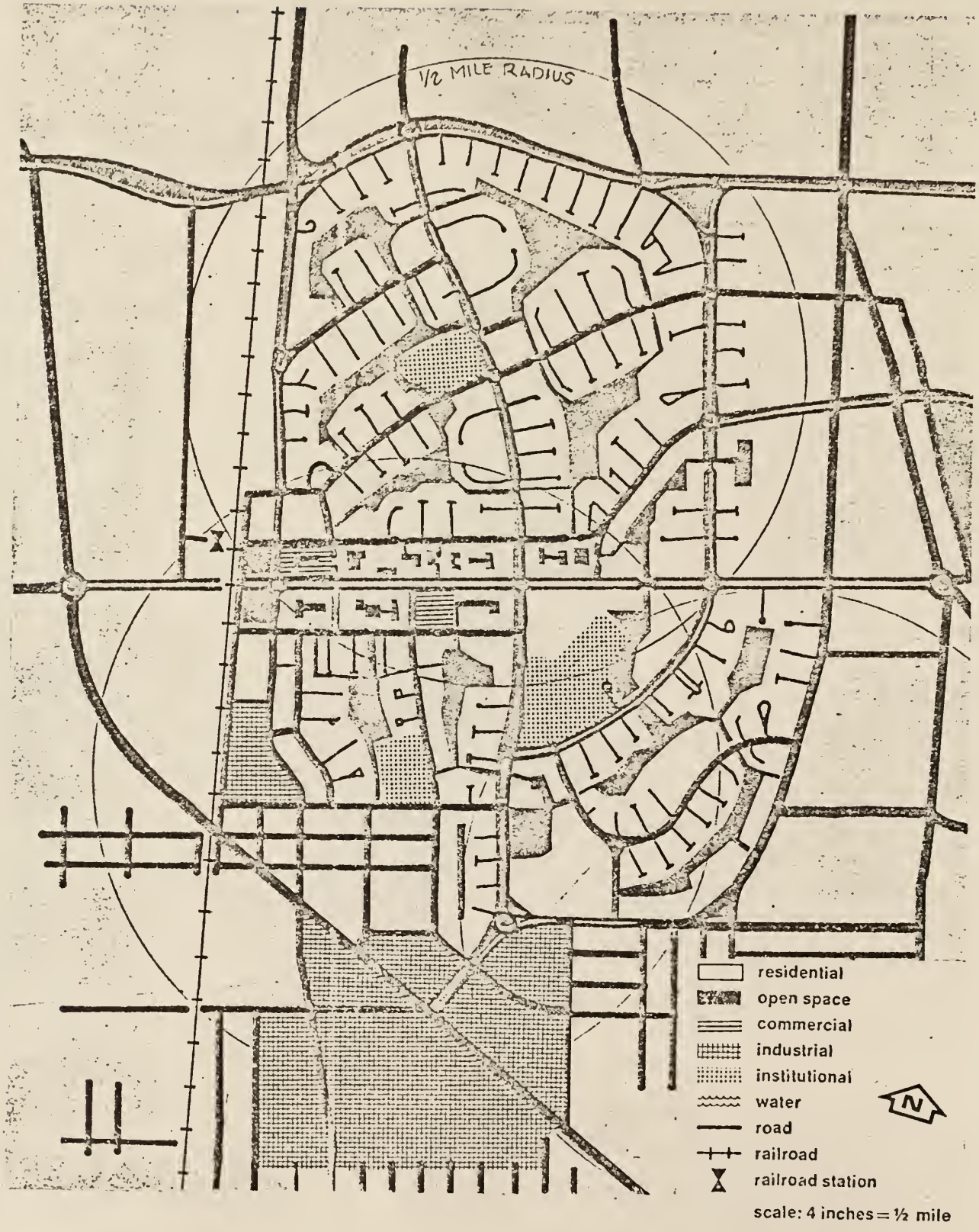
The planning department of the District of Burnaby B.C. Canada initiated a study in 1971, which dealt with long-range policies which affect the physical structure of the urban area. In the study a series of so-called Metro Towns were proposed for the Burnaby district in the future.

The concept of these metro towns in Burnaby are in general similar to that of the Hook New Town.

These towns are approximately one mile wide by three miles long. Each is planned to contain 100,000 people. These Metro Towns were proposed with a compact multifunctional core area, centrally located, with the high density residential zone forming a belt of building around it. The inside of this belt is designed as an integral part of the commercial center, its shops, offices, and institutional buildings.

A number of high rise apartment buildings are located around the central area and at the key points of the plan. The rest of the town is planned for medium density residential use. The width of the continuously built-up belt of residential areas around the town center is restricted to one-half mile. So within this belt it would take ten minutes at the most to walk either inwards to shop in the central area, or outwards to open space through a continuous urban landscape.

All the major regional traffic corridors are placed along the outside of the town. The central corridor, which passes under the town center, provides access between the regional corridors and the town center.



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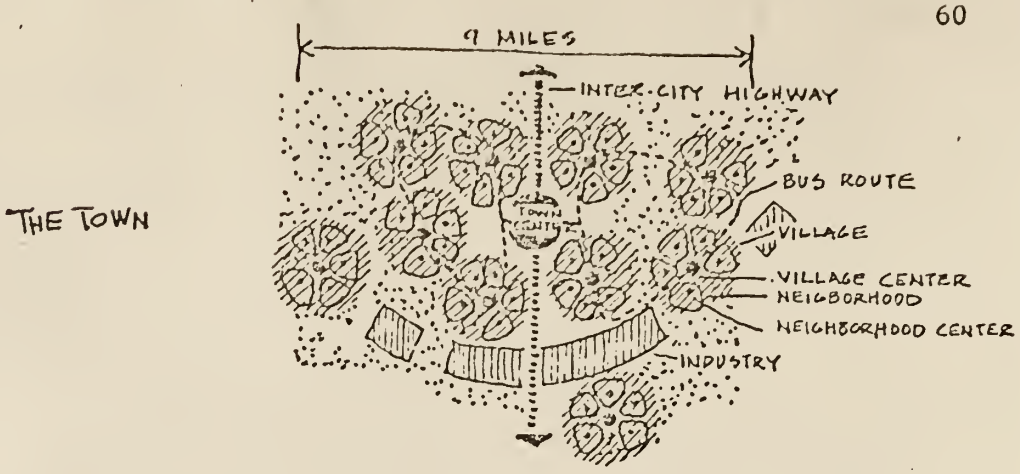
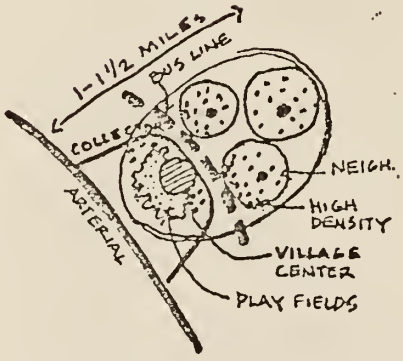
Radburn Community

18

Columbia New Town

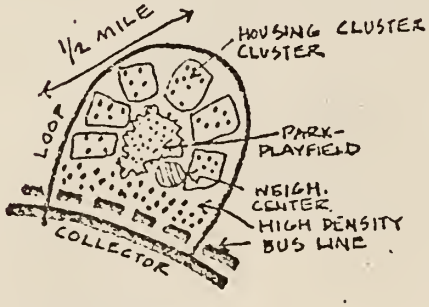


THE TOWN

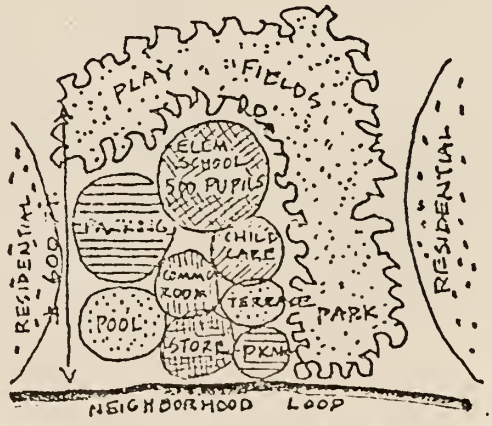


VILLAGE

VILLAGE CENTER



NEIGHBORHOOD



NEIGBORHOOD CENTER

20

Hook New Town

21 **District of Burnaby metro towns**

APPENDIX B - POPULATION LEVELS REQUIRED TO SUPPORT URBAN ACTIVITIES AND ACTIVITY CHARACTERISTICS

The Table - C, which appears in the book Innovations in New Communities,[5] presents a representative inventory of activities by general category and population levels at which their support becomes feasible in a service area.

The Table also shows the scale flexibility of the activity, frequency of its use by the people and maximum walking distance from home to the activity.

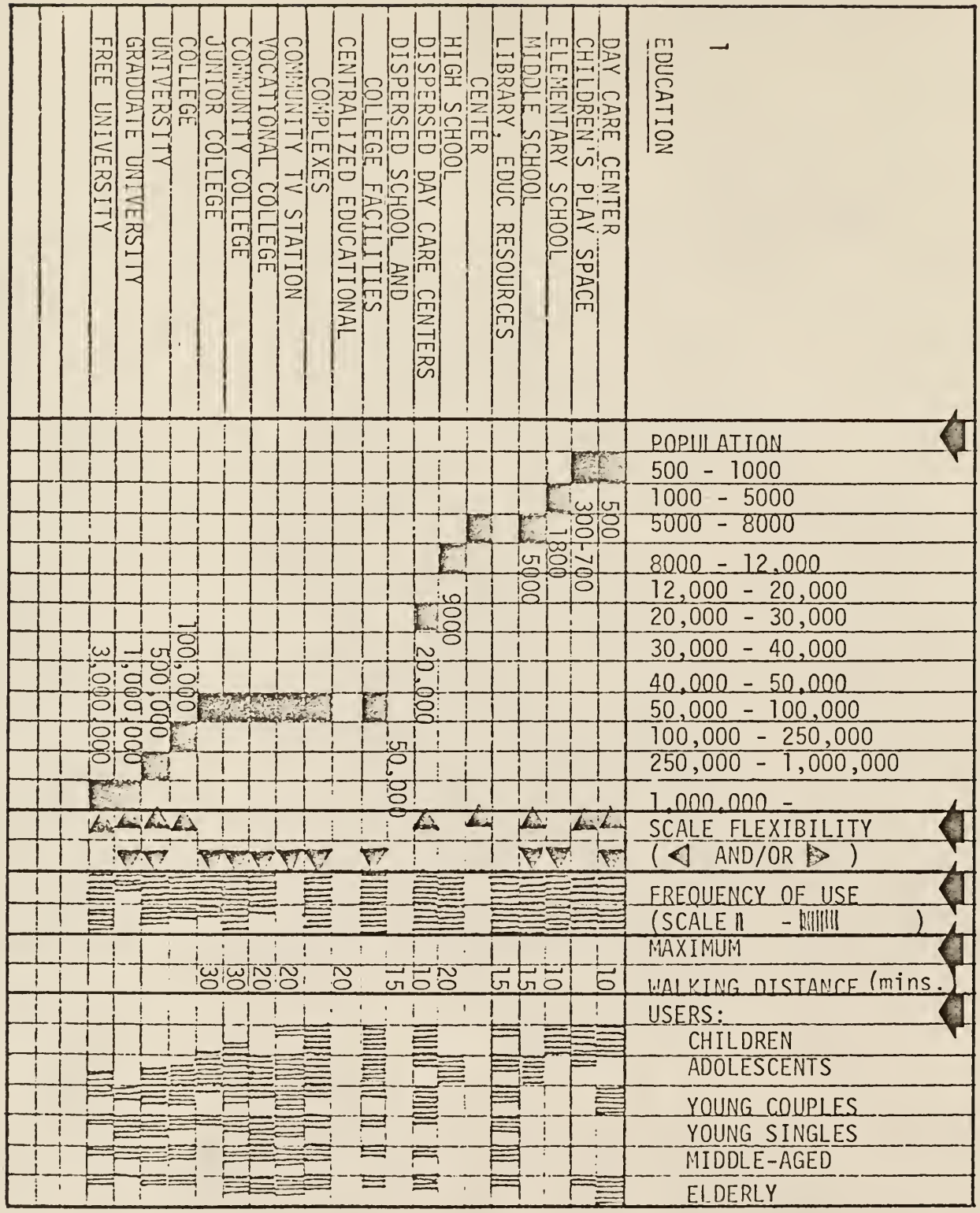


TABLE C - POPULATION LEVELS REQUIRED TO SUPPORT URBAN ACTIVITIES AND ACTIVITY CHARACTERISTICS

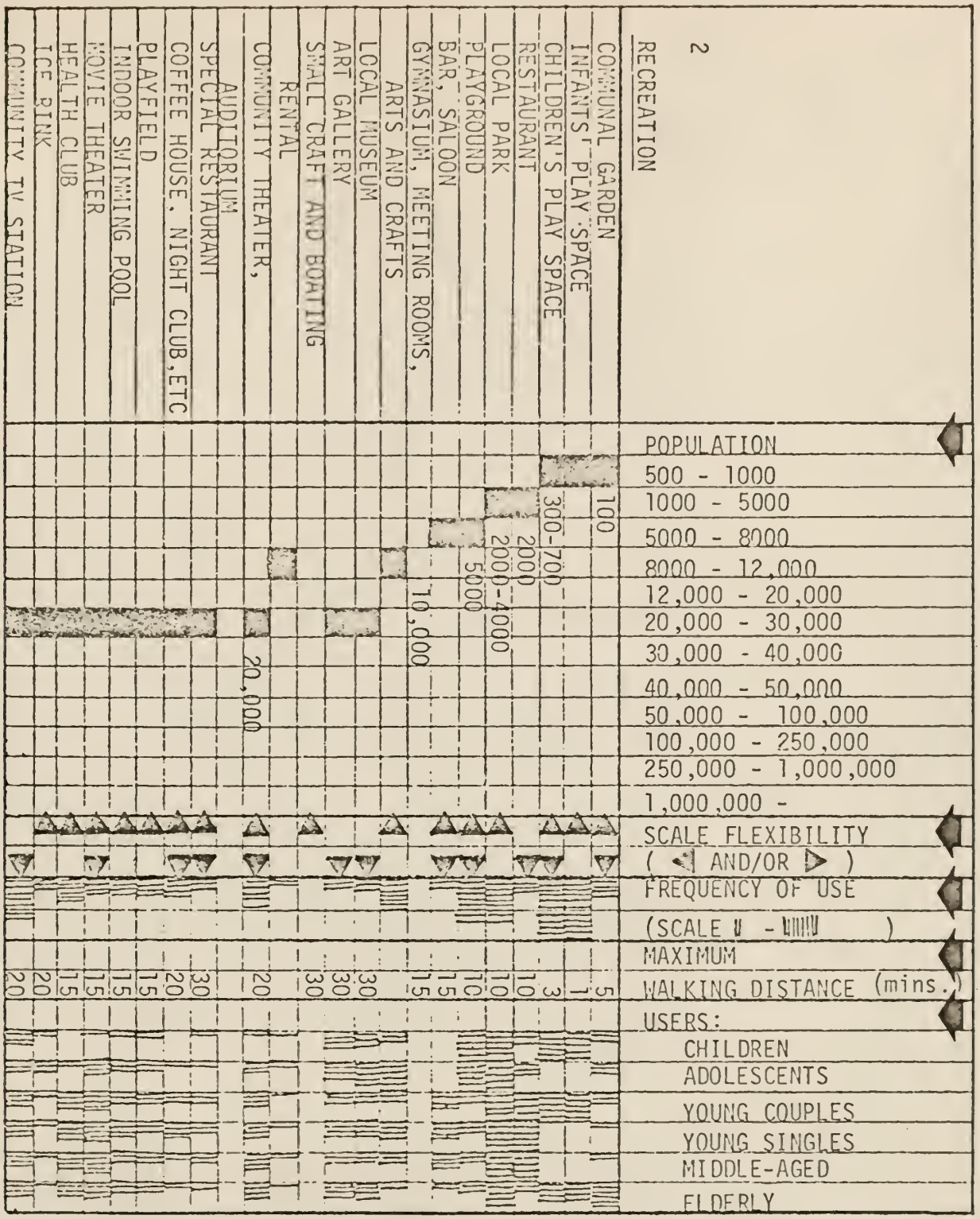
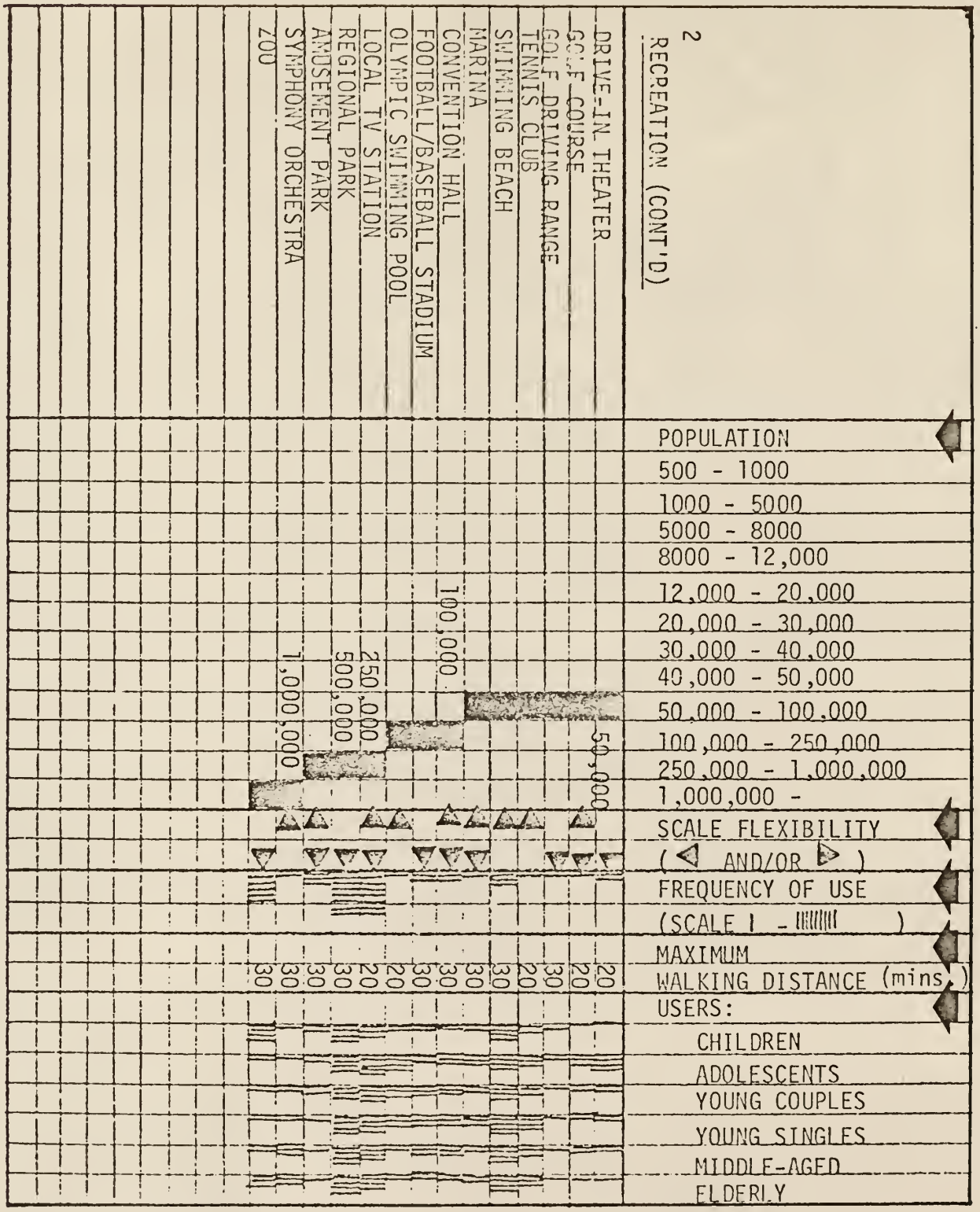


TABLE - C CONTINUED



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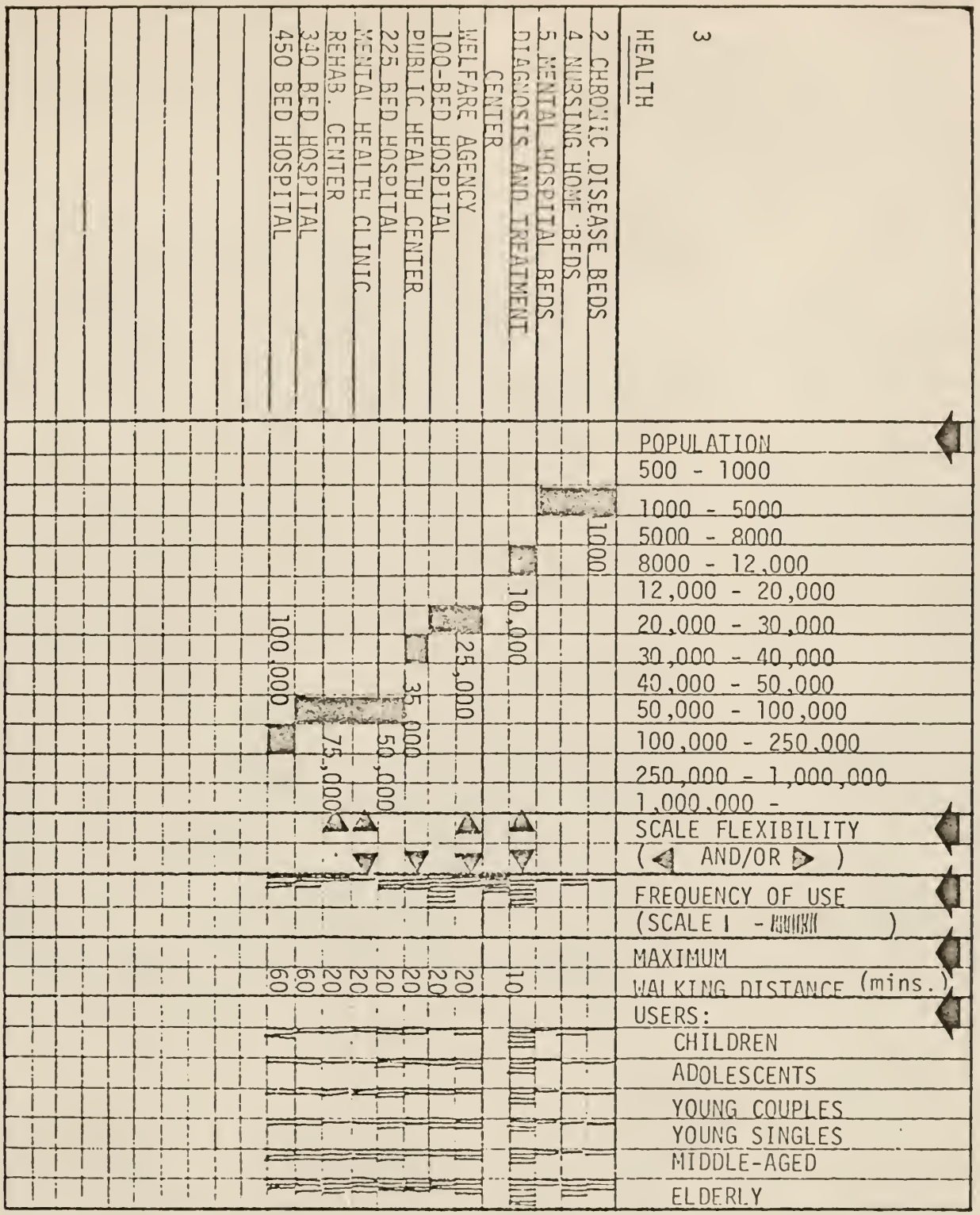
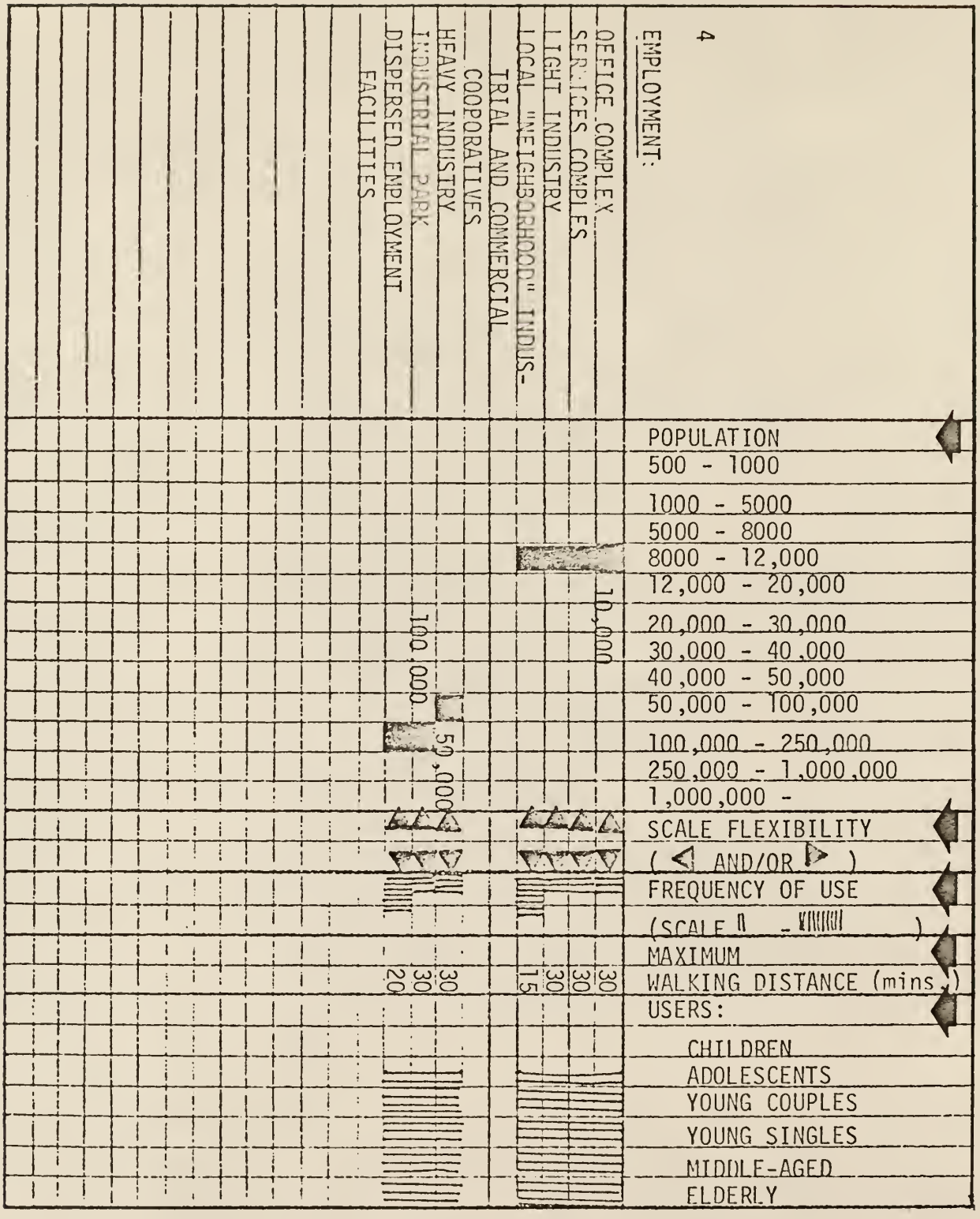


TABLE C - CONTINUED



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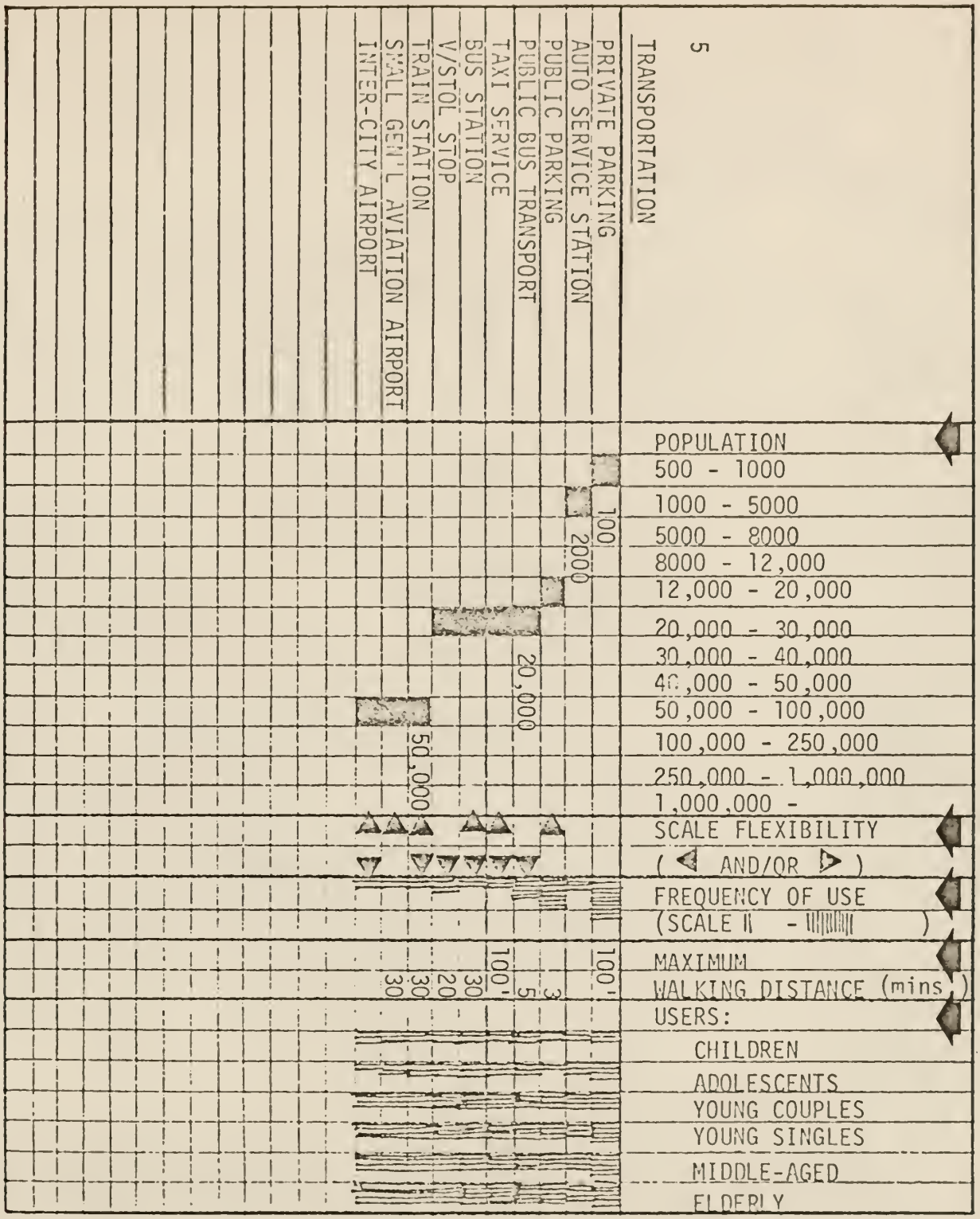

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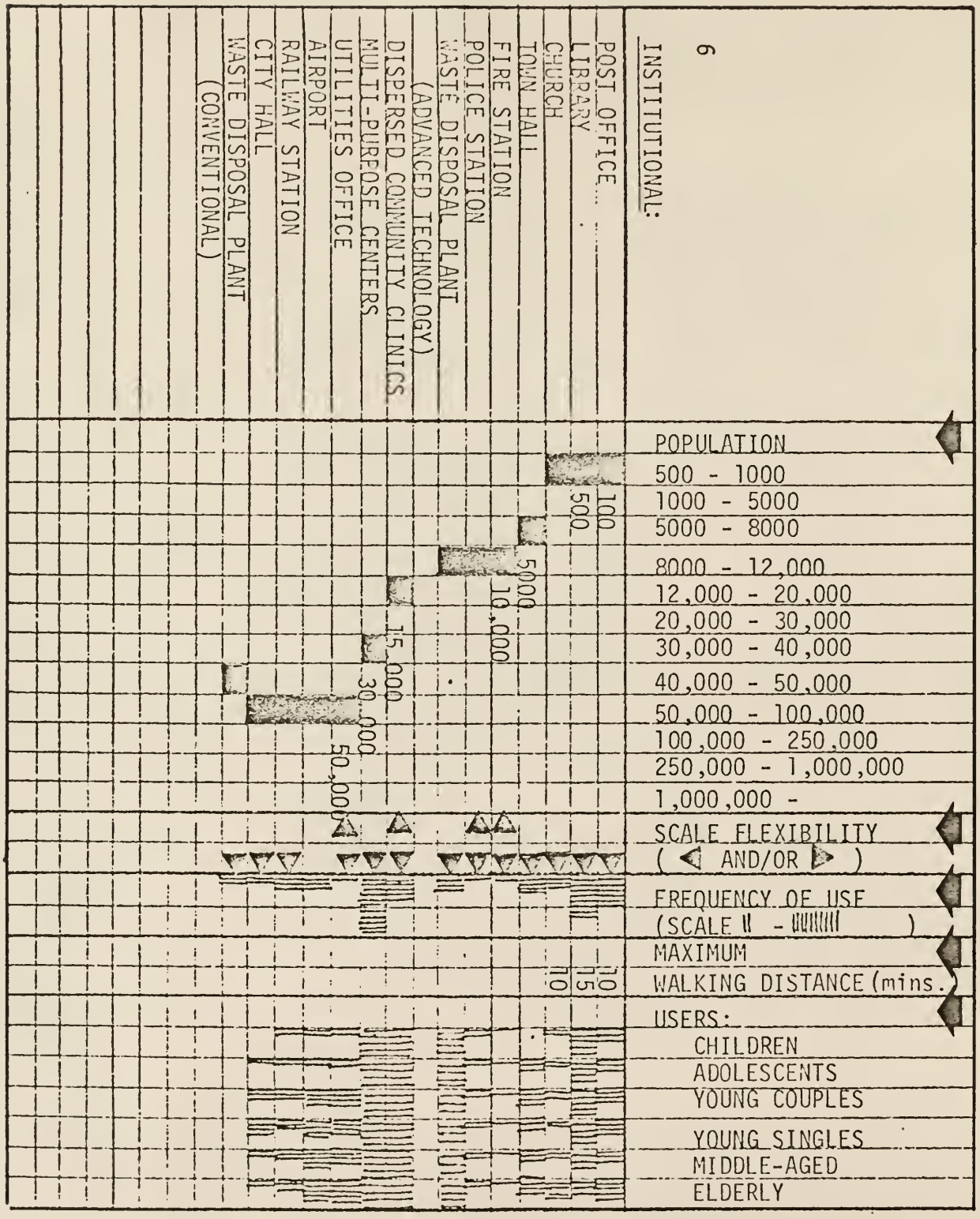

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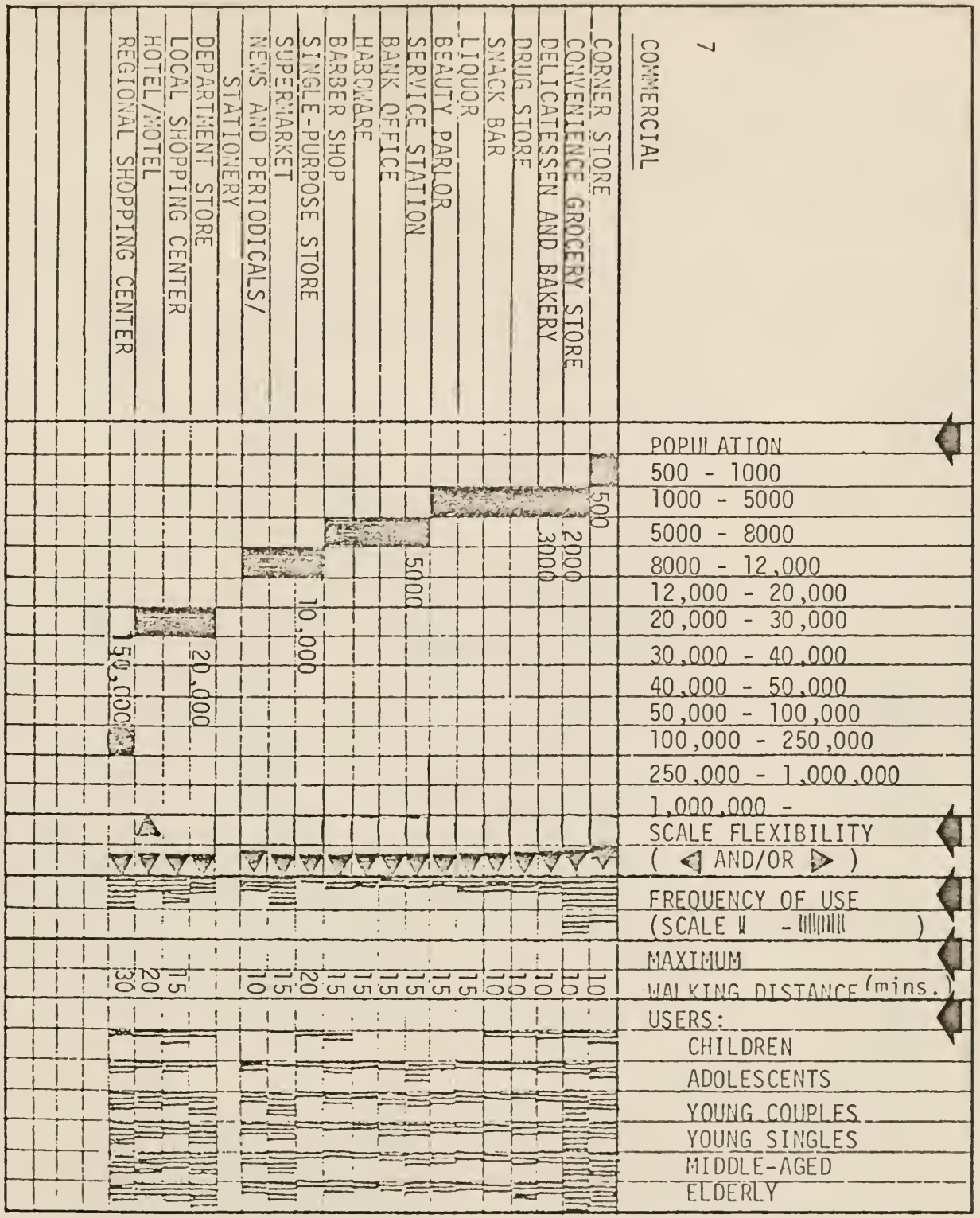

TABLE C - CONTINUED

Notes:

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5. Brown Miller, Neil J. Pinney, William S. Saslow, Innovation in New Communities, 1972, pp. E-6, E-14.

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